ERASABLE PROGRAMMABLE READ ONLY MEMORIES FROM JAPAN

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Determination of the Commission in Investigation No. 731-TA-288 (Preliminary) Under the Tariff Act of 1930, Together With the Information Obtained in the investigation

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Note.— Data which would disclose confidential operations of individual concerns may not be published and therefore have been deleted from this report. Deletions are indicated by asterisks.

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, DC

Investigation No. 731-TA-288 (Preliminary)

ERASABLE PROGRAMMABLE READ ONLY MEMORIES FROM JAPAN

Determination

On the basis of the record 1/ developed in the subject investigation, the Commission determines, pursuant to section 733(a) of the Tariff Act of 1930 (19 U.S.C. § 1673b(a)), that there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury 2/ by reason of imports from Japan of erasable programmable read only memories (EPROM's), provided for in item 687.74 of the Tariff Schedules of the United States, which are alleged to be sold in the United States at less than fair value (LTFV).

Background

On September 30, 1985, a petition was filed with the Commission and the Department of Commerce by Intel Corp., Santa Clara, CA; Advanced Micro Devices, Inc., Sunnyvale, CA; and National Semiconductor Corp., Santa Clara, CA, alleging that an industry in the United States is materially injured or threatened with material injury by reason of LTFV imports of EPROM's from Japan. Accordingly, effective September 30, 1985, the Commission instituted preliminary antidumping investigation No. 731-TA-288 (Preliminary).

Notice of the institution of the Commission's investigation and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade

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1/ The record is defined in sec. 207.2(i) of the Commission's Rules of Practice and Procedure (19 CFR § 207.2(i)).

2/ Vice Chairman Liebeler and Commissioner Seeley Lodwick determine that there is a reasonable indication that an industry in the United States is materially injured by reason of allegedly less than fair value imports of EPROM's from Japan.

Commission, Washington, DC, and by publishing the notice in the Federal Register of October 9, 1985 (50 FR 41230). The conference was held in Washington, DC, on October 21, 1985, and all persons who requested the opportunity were permitted to appear in person or by counsel.

VIEWS OF THE COMMISSION

We determine that there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury 1/ by reason of imports of erasable programmable read only memories (EPROM's) from Japan which are allegedly being sold at less than fair value (LTFV). 2/ Our determination is based primarily on the deteriorating financial condition of the domestic industry, the adverse impact of imports on recent price trends, and the particular sensitivity of this industry to decreased profitability due to its high capital investment requirements.

Like product and the domestic industry 3/

The term "industry" is defined in section 771(4)(A) of the Tariff Act of 1930 as "the domestic producers as a whole of a like product, or those

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1/ Material retardation is not an issue in this investigation, and will not be discussed.

2/ Vice Chairman Liebeler and Commissioner Lodwick determine that there is a reasonable indication that a domestic industry is materially injured by reason of allegedly LTFV imports of EPROM's from Japan.

3/ Vice Chairman Liebeler and Commissioner Rohr note that neither the arguments advanced by petitioners for a single like product and a single domestic industry nor the arguments advanced by parties in opposition to the petition for two like products and two domestic industries are adequate to fit the facts of this investigation within the analytic framework for like product and domestic industry traditionally employed by the Commission. However, for purposes of this preliminary investigation, had they found two like products (EPROM wafers/dice and finished EPROM's) and two domestic industries, they would have included domestic producers of EPROM wafers/dice within the industry producing finished EPROM's. Moreover, Commissioner Rohr notes he would have reached affirmative preliminary injury determinations with respect to both industries.

Should this case return to the Commission for a final investigation, the Commission strongly urges the parties to address the general question of appropriate frameworks for the analysis of the like product and domestic industry issues in this investigation. In addition, among the factual matters which the Commission believes should be further addressed are a more complete analysis of the assembly/testing process, including the technologies and costs involved; the relationships between the various corporate entities which may be involved in the production process for EPROM's; and more complete cost of production information.

producers whose collective output of the like product constitutes a major proportion of the total domestic production of that product . . . ." 4/ In turn, "like product" is defined as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation." 5/

The "article subject to an investigation" is defined by the scope of the investigation initiated by the Department of Commerce (Commerce). In this case, Commerce defined the scope of the investigation to be:

> erasable programmable read only memories . . . manufactured using variations of Metal Oxide-Semiconductor (MOS) process technology, including both Complementary (CMOS) and N-Channel (NMOS). The products include processed wafers, dice and assembled EPROM's produced in Japan and imported into the United States from Japan . . . .
>
> Processed wafers and dice produced in Japan and assembled into finished EPROM's in another country prior to importation into the United States from the other country are tentatively included in the scope of the investigation 6/

An EPROM is a monolithic integrated memory circuit containing thousands of transistors. A storage program can be created in the EPROM by charging selected transistors. The transistors remain charged indefinitely, even when the power is removed. 7/ In addition, the stored program in an EPROM can be changed by exposing the transistors to ultraviolet light through a window

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4/ 19 U.S.C. § 1677(4)(A).

5/ 19 U.S.C. § 1677(10).

6/ Notice of Initiation, 50 Fed. Reg. 43,603 (Oct. 28, 1985). There appears to be only limited imports of processed wafers and dice produced in Japan and assembled into finished EPROM's in another country prior to importation into the United States. In addition, imports of processed wafers and dice produced in Japan and imported into the United States for assembly into finished EPROM's are relatively small. Report of the Commission (Report) at A-29-A-30. By far the majority of the imports at issue in this investigation are of assembled EPROM's produced in Japan from wafers and dice manufactured in Japan.

7/ This ability to retain the stored charges distinguishes EPROM's from some other memory circuits, such as dynamic random access memories (DRAM's) which require constant refresh voltages for storage retention.

opening in the case directly above the EPROM die. Such exposure causes the stored charges to be erased. A new storage charge can then be created after erasure is completed. EPROM's vary in the speed at which the transistors can be addressed (access time), and in density (the number of transistors, expressed as multiples of 1,024 transistors, or K).

The production of EPROM's can be divided into several basic manufacturing operations. The production of the dice on the silicon wafer, called wafer fabrication, is one of the most difficult and costly of these operations. 8/ It involves significant investment of capital, both in basic research and in developing the highly sophisticated manufacturing technology. Following fabrication, each die on the wafer is electrically tested. Defective dice are marked for discards. This stage, known as wafer sorting, is generally performed at the same manufacturing establishment where wafer fabrication takes place. The process of wire bonding and final sealing of the individual die in a case is called assembly. Assembly operations traditionally have been more labor intensive than wafer fabrication and sorting. 9/ Most of the U.S.-based producers of wafers and dice have final assembly performed in developing countries. After assembly, each unit is tested and marked for identification prior to shipment.

Petitioners argue that there is one like product in this investigation, EPROM's, and that they are members of a domestic industry producing EPROM's. Parties appearing in opposition to the petition contend that there are two like products, finished (cased or assembled) EPROM's, and unfinished EPROM's (uncased or unassembled, wafers and dice). They further contend that

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8/ Wafer fabrication involves repeated photolithographic steps and the controlled introduction of impurities (dopants) into the silicon crystal wafer.

9/ Greater automation has been introduced in final assembly operations in order to reduce costs. See Transcript of public conference (Tr.) at 9-10.

petitioners are members of a domestic industry producing only unfinished EPROM's and, therefore, lack standing to institute a petition against imports of finished EPROM's.

like product

The Commission's decision regarding the appropriate like product in an investigation is essentially a factual determination. The Commission looks for clear dividing lines among products in terms of distinct characteristics and uses. Minor variations in products have been determined to be an insufficient basis for separate like product analysis. 10/ In making its determinations, the Commission has examined physical appearance, customer perceptions of the articles, common manufacturing facilities and production employees, channels of distribution, and interchangeability between products. 11/ In addressing the question of whether products at an earlier stage of their production process are "like" a "finished" product, the Commission may consider the necessity for and the costs of further processing, the degree of substitutability or interchangeability of the articles at the different stages of production, the degree to which the article at an earlier stage is dedicated to use in the finished product, whether there exists a significant independent use or an independent commercial market for the article at the earlier stage of production, and whether the article at the

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10/ See, e.g., Certain Radio Paging and Alerting Receiving Devices from Japan, Inv. No. 731-TA-102 (Final), USITC Pub. No. 1410 at 5 (1983); Certain Amplifier Assemblies and Parts Thereof from Japan, Inv. No. 731-TA-48 (Final), USITC Pub. No. 1266 at 4-5 (1982); Certain Steel Products from Belgium . . . ., Invs. Nos. 701-TA-86-144, 146, and 147 (Preliminary), USITC Pub. No. 1221 at 14-16 (1982).

11/ See, e.g., Certain Television Receivers from the Republic of Korea and Taiwan, Invs. Nos. 731-TA-134 and 135 (Final), USITC Pub. No. 1514 at 3-6 (1984); Certain Radio Paging and Alerting Receiving Devices from Japan, Inv. No. 731-TA-102 (Final), USITC Pub. No. 1410 at 8-9 (1983).

earlier stage of production embodies an essential characteristic of the finished product or imparts such a characteristic to the final product. 12/ 13/ No single factor is determinative.

In addition, we are cognizant of Congress' admonition against too narrow an interpretation of the term "like product" in the legislative history of the Trade Agreements Act of 1979:

> The requirement that a product be 'like' the imported article should not be interpreted in such a narrow fashion as to permit minor differences in physical characteristics or uses to lead to the conclusion that the product and the article are not 'like' each other, nor should the definition of 'like product' be interpreted in such a fashion as to prevent consideration of an industry adversely affected by the imports under investigation. 14/

Petitioners insist that a domestic industry producing FPROM's exists, and should not be precluded from obtaining relief under the antidumping laws

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12/ *See, e.g.*, 64K Dynamic Random Access Memory Components from Japan, Inv. No. 731-TA-270 (Preliminary), USITC Pub. No. 1735 (1985) (hereinafter DRAMs); Live Swine and Pork from Canada, Inv. No. 701-TA-224 (Final), USITC Pub. No. 1733 (1985); Nylon Impression Fabric from Japan, Inv. No. 731-TA-269 (Preliminary), USITC Pub. No. 1726 (1985); Photo Albums and Photo Album Filler Pages from Hong Kong and the Republic of Korea, Invs. Nos. 731-TA-240-241 (Preliminary), USITC Pub. No. 1660 (1985); Cellular Mobile Telephones and Subassemblies Thereof from Japan, Inv. No. 731-TA-207 (Preliminary), USITC Pub. No. 1629 (1984); Oil Country Tubular Goods from Argentina, Brazil, Korea, Mexico, and Spain Invs. Nos. 731-TA-191-195 and 701-TA-215-217 (Preliminary), USITC Pub. No. 1555 (1984); Certain Steel Valves and Certain Parts Thereof from Japan, Inv. No. 731-TA-145 (Preliminary), USITC Pub. No. 1446 (1983); Forged Undercarriage Components from Italy, Inv. No. 701-TA-201 (Preliminary), USITC Pub. No. 1394 (1983); Fireplace Mesh Panels from Taiwan, Inv. No. 701-TA-185 (Preliminary), USITC Pub. No. 1284 (1982); Rail Passenger Cars from Canada, Inv. No. 701-TA-182 (Preliminary), USITC Pub. No. 1277 (1982).

13/ Commissioner Rohr notes that while these factors may be implicit in prior Commission decisions, they have not necessarily been expressed in the terms stated above. It is not clear therefore that they account for the decisions in those investigations. If this matter returns to the Commission for a final investigation, the parties should address both the factual basis for the consideration of these factors as well as whether these factors or others should form the basis for the Commission's like product analysis.

14/ S. Rep. No. 249, 96th Cong., 1st Sess. 90 (1979).

simply because of the historical development of the industry which resulted in final assembly operations being conducted overseas. 15/

In this preliminary investigation, we have determined that there is one like product, EPROM's, which includes processed wafers, dice, and assembled EPROM's. 16/ There appears to be virtually no independent commercial market for EPROM wafers and dice. 17/ 18/ Moreover, once wafer fabrication commences, the resulting dice are dedicated to a single use, as the memory

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15/ We note that the statutory scheme provides for the determination of "like product" as an initial matter. That determination then defines the relevant "domestic industry." Consequently, arguments concerning the "economic reality" of the "industry" have limited value, as they do not address the basic "like product" issue. Such arguments are, of course, relevant to the consideration of the scope of the "domestic industry" once the "like product" question has been resolved.

16/ No party has argued that wafers and dice should be found to be separate like products. In our view, these two should not be analyzed separately: EPROM dice are simply EPROM wafers which have been cut apart. Similarly, no party argued that different densities of EPROM's should constitute separate like products. The only difference between the densities is the memory storage capacity of the chip. While this question may merit further consideration in the event that a final investigation is instituted, we do not believe that the record suggests that a separate like product analysis for the different densities is appropriate for the purposes of this preliminary investigation.

NEC, a party in opposition to the petition, has argued that CMOS technology EPROM's are beyond the scope of this investigation. For purposes of this preliminary investigation, we have concluded that CMOS and NMOS EPROM's are like products. The issue may merit further consideration in a final investigation, should one be instituted. See n.3, supra.

17/ An insignificant percentage of dice may be sold to manufacturers of "hybrid" semiconductor chips. Tr. at 118. Further information on the extent of any such sales will be sought should this matter return for a final investigation.

According to counsel for petitioners, the majority of petitioners' EPROM assembly overseas is performed by affiliates of the U.S. manufacturers of the wafers and dice. Even when performed by independent subcontractors, in which case the wafers/dice may be sold to the assembler, and the assembled EPROM bought back, the resulting assembled EPROM is sold to end users as the product of the U.S. company which manufactured the dice, not the assembler. Thus, assembly operations are largely a service operation, and do not function as an independent commercial market. Telephone conversation between counsel for petitioners and the Staff Attorney, Oct. 30, 1985.

18/ Commissioner Rohr notes that it is unclear whether the lack of an independent commercial market for EPROM wafers and dice is a necessary attribute of the manufacturing process or merely reflects a stage in the development of the EPROM product.

unit in a finished EPROM. The die in each EPROM embodies, and imparts to the finished EPROM, the essential characteristics for which an EPROM is purchased by end users, its memory functions. 19/ Sales to end users are almost entirely of finished EPROM's, which are sold as the product of the company which manufactured the wafers and dice, not the company which assembled the EPROM. 20/

domestic industry

Having determined that there is one like product in this investigation, we must determine the identity of the companies which are "domestic producers of the like product." Eight firms produce EPROM wafers and dice in the United States that are then assembled overseas. 21/ Of these eight, one has also assembled EPROM's in the United States, although this operation has ceased, 22/ and petitioner Intel is planning an assembly operation in Chandler, Arizona. 23/ In addition, Fujitsu Microelectronics, Inc. (Fujitsu) assembles EPROM's in the United States using wafers/dice imported from Japan. 24/ 25/

19/ Commissioner Rohr notes that this may be an oversimplification of the essential characteristics of an EPROM and urges the parties to address this question should this matter return to the Commission for a final investigation.

20/ *See* n.17, *supra*.

21/ They are Intel, Inc., Advanced Micro Devices, Inc., and National Semiconductor Corporation (petitioners), and Mostek Corp., Motorola, Inc., Rockwell International Corp., SEEQ Technology, Inc., and Texas Instruments. Report at A-6.

22/ *Id*.

23/ Tr. at 50.

24/ Report at A-6. Fujitsu opposes the petition in this investigation.

25/ Commissioner Lodwick joins the remainder of the domestic industry section on pages 10-13 for discussion purposes. He notes that since he has determined that the single like product includes processed wafers, dice, and assembled EPROM's, for the purposes of this preliminary determination, he has included all domestic operations which produce processed wafers, dice, or assembled EPROM's in defining the domestic industry. He further notes that though some of these operations also import, the imports do not skew the data to the extent that any exclusions from the domestic industry are appropriate.

The Commission's analysis of domestic industry is a factual determination and is made on a case-by-case basis. 26/ The domestic content share of the assembled EPROM's sold by the companies which assemble overseas varied significantly. 27/ Fujitsu, which assembles EPROM's in the United States from wafers/dice imported from Japan, reported a U.S. content share of its products which is comparable to the low end of the range reported by companies which assemble overseas. 28/ These percentages are based on the U.S. product costs as a percentage of cost of goods sold.

The activities in the United States of the companies which assemble overseas include research and development of all aspects of EPROM technology, from wafer fabrication through assembly and final testing technology. 29/ In

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26/ In prior investigations, the Commission has examined the overall nature of production-related activities in the United States, including the extent and source of a firm's capital investment, the technical expertise involved in production activity in the United States, the value added to the product in the United States, employment levels, the quantity and type of parts sourced in the United States, and any other costs and activities in the United States directly leading to production of the like product. No single factor is determinative, and the Commission's analysis should consider all of these factors, and any other factors which are deemed relevant in light of the specific facts of the investigation. See Color Television Receivers from the Republic of Korea and Taiwan, Invs. Nos. 731-TA-134-135 (Final), USITC Pub. No. 1514 at 8 (1984); Certain Radio Paging and Alerting Receiving Devices from Japan, Inv. No. 731-TA-102 (Final), USITC Pub. No. 1410 at 8 (1983).

27/ Report at A-5-A-7. The range of values provided by producers indicates that further analysis of this issue would be appropriate if a final investigation is undertaken. Domestic content share calculated on a cost basis may not be the most appropriate basis on which to consider the significance of foreign and domestic operations in this industry.

28/ Id.

29/ Tr. at 9-11. As is the case with the entire semiconductor industry, EPROM manufacturers invest substantial sums in research and development of future generation products. U.S.-based producers view EPROM production as both a revenue generator and technology driver, necessary to the development of future generation products. Should this matter return to the Commission for a final investigation, further information will also be sought concerning the extent and nature of any research and development activities conducted by the foreign affiliates of U.S. companies.

addition, wafer fabrication and wafer sorting are done in U.S. facilities. These operations require sophisticated technology and extremely high capital investment levels. By contrast, assembly operations have been historically more highly labor intensive and are, therefore, performed overseas where labor costs are lower. 30/ In addition, petitioners argue that even where assembly and unit testing are performed overseas, their engineering components, such as the development of the packaging and the testing technology, occur in the United States. Moreover, foreign assembly operations are conducted under strict control by the U.S.-based manufacturer of the dice, or to its specific standards. A high degree of control over the final assembly and testing stages is important because the assembled EPROM is sold as the product of the company which manufactured the wafer, irrespective of the identity of the assembler.

One factor which is new to this case is that, unlike previous investigations, almost all of the final assembly of EPROM's takes place overseas. The Customs Service considers final assembly to be a "substantial transformation" such that EPROM's assembled overseas are imported into the United States as the product of the country of final assembly. We have concluded that Customs' determination of substantial transformation is not

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30/ Costs associated with assembly and testing have not declined as rapidly over the life of the product as have the costs involved in wafer fabrication. The companies which assemble overseas have introduced greater automation in order to lower assembly costs. Tr. at 9-10. However, because of the more rapid decline in wafer fabrication costs, assembly costs appear to represent an increasing percentage of total product costs over time.

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binding on us for purposes of determining like product or whether a domestic industry exists. 31/

In this preliminary investigation, we have determined that the domestic industry is composed of those companies which produce EPROM wafers and dice or assemble EPROM's in the United States. We believe that there is insufficient reliable data at the present time to warrant exclusion of companies which only assemble EPROM's in the United States. We note, however, that our determination would have been the same had we excluded the operations of such companies.

One further question arises. Some of the companies within the domestic industry as defined above import EPROM's within the scope of the investigation. 32/ Thus, we must consider whether those companies should be excluded from consideration of the domestic industry under the related parties provision of the statute, 19 U.S.C. § 1677(4)(B). That provision calls for the Commission to exercise its discretion in determining whether "appropriate circumstances" exist for the exclusion of related parties from the industry. The primary purpose for the provision is to avoid the distortion in the aggregate data concerning the domestic industry which might result from the inclusion of related parties whose operations are shielded from the effect of

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31/ We have previously concluded that the Commission should not make an independent determination of whether substantial transformation of a product has occurred in considering import volumes. Nylon Impression Fabric from Japan, Inv. No. 731-TA-269 (Preliminary), USITC Pub. No. 1726 at 8, n.26 (1985). The question before us in this case is simply whether Customs' substantial transformation determination is binding on the Commission in its consideration of the like product and domestic industry issues. We are of the opinion that it is not. While Customs has expertise in applying its substantial transformation analysis for purposes of determining country of origin for TSUS classification purposes, the issues of like product and domestic industry raise different analytical questions, and are within the expertise of the Commission.

32/ Report at A-7-A-8.

imports. Based on the information available in this preliminary investigation, we have concluded that exclusion of these companies would not be appropriate.

Parties in opposition to the petition requested that the Commission dismiss the petition on the basis that petitioners lack standing. Based on our conclusion concerning like product and the domestic industry, we have determined that there is no basis for this request. However, because this issue is being raised in an increasing number of preliminary investigations, we note that the Commission does not have the authority to dismiss a petition for lack of standing. 33/

33/ We recently stated that "while the degree of support for a petition is a fact which is a part of the record being considered by the Commission, the authority to dismiss a petition on the grounds that it is not 'on behalf of an industry' belongs to Commerce, not the Commission." Certain Table Wine from the Federal Republic of Germany, France and Italy, Invs. Nos. 701-TA-258-260 and 731-TA-283-285 (Preliminary), USITC Pub. No. 1771 at 4, n.5 (1985). The statute specifically grants to Commerce the authority to determine whether to initiate an investigation at the outset, and requires, among other factors, that a petition be filed "on behalf of an industry." 19 U.S.C. § 1673a(b)(1); see 19 U.S.C. § 1673a(c). Commerce may dismiss a petition for lack of standing, i.e., a determination that petitioners do not represent the domestic industry, at any time during the course of an investigation. Gilmore Steel Corp. v. United States, 585 F. Supp. 570 (Ct. Int'l Trade 1984).

By contrast, the Commission must institute its investigation prior to Commerce's determination of whether to initiate an investigation. The Commission has no statutory role in the initiation determination. Similarly, once the Commission has instituted a preliminary investigation, there are no provisions in the statute which provide for termination of the investigation or dismissal of the petition. In fact, even if a petition is withdrawn, the Commission must wait until Commerce has made a preliminary determination or terminated its preliminary investigation before the Commission can terminate its own preliminary investigation. 19 U.S.C. § 1673c(a).

The fact that Commerce's pre-initiation procedures prevent parties in opposition from raising standing issues prior to initiation is certainly unfortunate from those parties' point of view, but it does not justify the Commission dismissing a petition which Commerce has determined is sufficient for purposes of institution.

Condition of the domestic industry 34/

In assessing the condition of the domestic industry, the Commission considers, among other factors, consumption, production, capacity, capacity utilization, inventories, employment, wages, sales, and profitability. 35/ No single factor is determinative, and in each investigation, the Commission must consider the particular nature of the industry which it is examining in making its determination.

Domestic consumption of cased EPROM's increased by 86 percent from 1982 to 1984, from 36,582,000 units to 67,921,000 units. 36/ During the most recent period, January-June 1985, there was a 4 percent decline in total consumption of cased EPROM's as compared with the corresponding period of 1984. This decline is attributable to the declining consumption of lower density (64K and under) EPROM's. Consumption of higher density EPROM's (128K and above) increased steadily during the period under investigation, and has increased dramatically during the period January-June 1985, as compared with the corresponding period of 1984. It appears clear that U.S. demand for EPROM memory capacity increasingly is being supplied by higher density EPROM's.

Domestic production of EPROM's also increased steadily from 1982 to January-June 1985. 37/ As with consumption, production levels rose dramatically in the higher density EPROM's, while production of the lower densities increased at a slower rate overall. This clearly visible

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34/ In addressing the condition of the domestic industry, the Commission has not included all the data relating to the operations of Fujitsu, because of differences in reporting and difficulties in aggregating data. However, in reaching our determination, we did consider the data concerning Fujitsu.

35/ 19 U.S.C. § 1677(7)(C)(iii).

36/ Report at A-9.

37/ *Id.* at A-14.

generational shift over time to higher capacity circuits is typical of semiconductor products.

The Commission requested data concerning capacity of all integrated circuits, because the manufacturing facilities used to produce EPROM's can generally be used to produce all integrated circuits. 38/ Producers reported capacity on two different bases, die equivalents, and 4-inch wafer starts. Because of the differences in reporting, it is impossible to aggregate capacity information. However, the data indicate that, in general, average-for-period capacity to produce integrated circuits has increased since the beginning of the period under investigation. 39/ Capacity utilization increased from 1982 to 1984, but decreased in the most recent period, January-June 1985, as compared with the corresponding period of 1984. 40/

Domestic shipments of cased EPROM's, the wafer/dice of which were manufactured in the United States, increased throughout the period under investigation. 41/ As with production, domestic shipments of higher density EPROM's have been increasing rapidly, while domestic shipments of lower density EPROM's have increased more slowly or have declined. 42/ Average unit values of domestic shipments of EPROM's of each density declined throughout the period under investigation. The declines in average unit values have been most dramatic in the higher density EPROM's during the period January-June 1985, as compared with the corresponding period of 1984. 43/ These declines resulted in significant declines in the dollar value of domestic shipments

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38/ The Commission will attempt to obtain additional and more complete domestic capacity information specifically related to EPROM's should this matter return for a final investigation.

39/ Report at A-13.

40/ *Id*.

41/ *Id*. at A-17.

42/ *Id*.

43/ *Id*.

during January-June 1985, despite the relatively greater proportion of shipments accounted for by higher value, higher density EPROM's. 44/

U.S. producers' inventories of uncased EPROM's declined steadily from 1981 to 1983, then increased in 1984. 45/ Data for the most recent period, January-June 1985, show a dramatic increase in inventories of uncased EPROM's, as compared with the corresponding period of 1984. 46/ By contrast, U.S. producers' inventories of cased EPROM's, the wafer/dice of which were manufactured in the United States, increased steadily from 1981 to 1983 before declining marginally in 1984. 47/ Data for the most recent period, January-June 1985, show a dramatic increase in inventories of cased EPROM's, to a level which exceeds total yearend inventories in 1984. 48/

The number of production and related workers employed in the production of uncased EPROM's increased steadily during the period under investigation, despite reductions in employment by some domestic producers. 49/ Similarly, hours worked increased throughout the period under investigation, as have wages and total compensation paid to production and related workers producing uncased EPROM's. 50/ This picture of the domestic industry is somewhat deceptive, as some companies have instituted layoffs and/or plant shut-downs during January-June 1985, while at least one company has instituted a reduced work week. 51/ Moreover, average hourly compensation for workers producing EPROM's declined dramatically during the most recent period, January-June

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44/ Id.
45/ Id. at A-20.
46/ Id.
47/ Id.
48/ Id.
49/ Id. at A-22.
50/ Id.
51/ Id. at A-21.

1985, as compared with the corresponding period of 1984, following increases from 1982 to 1984. 52/

The Commission received financial information from the eight firms which perform wafer fabrication in the United States and sell finished EPROM's assembled overseas from such wafers/dice. These producers' data accounted for over 95 percent of U.S. shipments of cased EPROM's in 1984. 53/ Net sales of cased EPROM's increased from $249.5 million in 1982 to $471.0 in 1984, and the industry recorded operating income of $113.8 million in 1984, a significant improvement from the $1.1 million operating loss recorded in 1982. The ratio of operating income to net sales improved from a loss of 0.5 percent in 1982 to a profit of 24.2 percent in 1984. 54/ However, data for the most recent period, January-June 1985, show a dramatic decline as compared with the corresponding period of 1984. 55/ Net sales in January-June 1985 were $160.8 million, as compared with $191.2 million during the corresponding period of 1984, and the industry recorded operating losses of $6.2 million during January-June 1985, as compared with operating income of $61.0 million during the corresponding period of 1984. The ratio of operating income to net sales was a loss of 3.9 percent during January-June 1985, as compared with a profit of 31.9 percent during the corresponding period of 1984. 56/ Moreover, seven firms reported operating losses during the interim period January-June 1985, as compared with four firms during the corresponding period of 1984, and only two firms for the full year 1984. 57/

52/ Id. at A-22.
53/ Id. at A-23.
54/ Id. at A-24.
55/ Id.
56/ Id.
57/ Id.

Based on our overall assessment of the condition of the domestic industry, we conclude that there is a reasonable indication of material injury to the domestic industry producing EPROM's. 58/ 59/

Reasonable indication of material injury by reason of allegedly LTFV imports 60/

When making a determination as to whether there is a reasonable indication of material injury, the statute provides that:

> the Commission shall consider, among other factors:
> (i) the volume of imports of the merchandise which is the subject of the investigation,
> (ii) the effect of imports of that merchandise on prices in the United States for like products, and
> (iii) the impact of imports of such merchandise on domestic producers of like products. 61/

58/ Chairwoman Stern does not believe it necessary or desirable to make a determination on the question of a reasonable indication of material injury or threat thereof separate from the consideration of causation. She joins her colleagues by concluding that the domestic industry is experiencing economic problems.

59/ Commissioner Eckes believes that the Commission is to make a finding regarding the question of a reasonable indication of material injury or threat thereof in each investigation. The Court of International Trade recently held that:

> The Commission must make an affirmative finding only when it finds both (1) present material injury (or threat to or retardation of the establishment of an industry) and (2) that the material injury is 'by reason of' imports. Relief may not be granted when the domestic industry is suffering material injury but not by reason of unfairly traded imports. Nor may relief be granted when there is no material injury, regardless of the presence of dumped or subsidized imports of the product under investigation. In the latter circumstances, the presence of dumped or subsidized imports is irrelevant, because only one of the two necessary criteria has been met, and any analysis of causation of injury would thus be superfluous.

American Spring Wire Corp. v. United States, 590 F. Supp. 1273, 1276 (emphasis supplied), *aff'd sub nom.*, Armco, Inc. v. United States, 760 F.2d 249 (Fed. Cir. 1985).

60/ Vice Chairman Liebeler does not join in the remainder of this opinion. *See* her Additional Views, *infra*.

61/ 19 U.S.C. § 1677(7)(B).

Imports of EPROM's from Japan increased dramatically between 1982 and 1983, and increased again in 1984. Interim data for the most recent period, January-June 1985, show a slight decline from the import levels during the corresponding period of 1984. 62/ However, we note that the entire decline is attributable to decreased imports of lower density EPROM's. Imports of higher density EPROM's continued to increase dramatically during the most recent period, January-June 1985. 63/

The U.S. market share of shipments of imports of EPROM's from Japan increased from 1982 to 1983, then declined slightly in 1984. 64/ Data for the most recent period, January-June 1985, show a continued slight decline as compared with the corresponding period of 1984. However, these declines are deceptive, as they are accounted for largely by declines in the U.S. market share of imports of lower density EPROM's, while the U.S. market share of imports of higher value, higher density EPROM's continued to increase dramatically throughout the period under investigation. 65/

The Commission collected pricing information from domestic producers and importers for different densities of EPROM's with respect to each of the three major channels of distribution. 66/ Although there are some variations with

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62/ Report at A-30.

63/ Id.

64/ Id. at A-31. The Commission considered both imports of cased and imports of uncased EPROM's in evaluating import penetration, as both are included within the scope of the investigation initiated by Commerce.

65/ Id. When calculated based on K equivalents, the average market share of cased EPROM's made from uncased EPROM's produced and assembled in Japan has increased throughout the period under investigation. Investigations memorandum INV-I-209 (Nov. 7, 1985).

66/ The three major channels of distribution are (1) sales to end users, i.e., original equipment manufacturers and circuit board stuffers, (2) sales to distributors, and (3) spot sales. Report at A-9. The Commission collected pricing information for four different categories of end use products from original equipment manufacturers: (1) office automation equipment; (2) telecommunications equipment; (3) industrial automation equipment; and (4) consumer electronic products, including personal computers. Id. at A-31.

respect to sales of particular density EPROM's to particular purchasers, on the whole the data demonstrate a dramatic collapse in both domestic and import prices. October 1985 price levels in some cases are only a small fraction of what they were in mid-1984. 67/ The general pattern is one of significant underselling by imports from Japan. 68/ The available information indicates that aggressive price competition has been led by the Japanese imports. 69/

The Commission confirmed several instances of lost sales due to price competition from Japanese imports. 70/ Most of the original equipment manufacturers require producers of EPROM's to qualify as suppliers, and then negotiate long-term contracts with a particular supplier. These contracts are generally subject to price renegotiation at the purchaser's option. Thus, once a supplier has qualified, competition is largely based on price.

The Commission also confirmed numerous instances of lost revenues resulting from domestic producers being forced to reduce prices in the face of competition from Japanese imports. 71/

There is no doubt that the EPROM market has experienced a dramatic price decline, particularly during 1985. Although U.S. producers managed to

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67/ Id. at A-34-A-54 and Appendix E. For instance, the price of 64K EPROM's sold to original equipment manufacturers dropped from a contract award price index of 100 in October-December 1983 to as low as 42 in August 1985. The price index for 128K EPROM's dropped from a contract award level of 100 in October-December 1983 to as low as 15 in August 1985, while the price index for 256K EPROM's dropped from a contract award level of 100 in October-December 1983 to 11 in October 1985. Id. at A-35, A-37, A-39. Similar price indices constructed for sales to circuit board stuffers, distributors, and in the spot market, show prices dropping from an index level of 100 in June 1984 to lows ranging from 18 to 49 in October 1985. Id. at Appendix E.

68/ Id. at A-34-A-54 and Appendix E.

69/ See, e.g., information concerning lost sales and revenues due to price competition, Id. at A-54-A-62; Memorandum regarding the "10% Rule" with respect to Hitachi EPROM's, Appendix 4 to the Petition.

70/ Report at A-54-A-58.

71/ Id. at A-59-A-62.

maintain a significant share of the U.S. market, it appears to have been at the expense of price declines for even the highest densities which are far in excess of what could reasonably have been expected, based on the declining cost structures typical in this industry. The profitability of the U.S. producers therefore declined dramatically during this period. The information presently before the Commission suggests that the aggressive pricing of the allegedly LTFV imports has contributed to the dramatic downward price spiral. Thus, we conclude that there is a reasonable indication of material injury by reason of allegedly LTFV imports from Japan.

Reasonable indication of threat of material injury by reason of allegedly LTFV imports

The statute sets forth a series of factors the Commission is to consider in analyzing the issue of a reasonable indication of threat of material injury. 72/ These factors include: (1) any increase in production capacity or existing unused capacity in the exporting country likely to result in a significant increase in imports to the United States; (2) any rapid increase in United States market penetration and the likelihood that the penetration will increase to an injurious level; (3) the probability that imports of the merchandise will enter the United States at prices that will have a depressing or suppressing effect on domestic prices of the merchandise; (4) any substantial increase in inventories of the merchandise in the United States; (5) the presence of underutilized capacity for producing the merchandise in the exporting country; (6) any other demonstrable adverse trends that indicate the probability that the imports will be the cause of actual injury; and (7) the potential for product-shifting.

72/ 19 U.S.C. § 1677(7)(F).

In addition, in order to conclude that there is a reasonable indication that allegedly LTFV imports are a threat of material injury to the domestic industry, the Commission must find that the threat of material injury is real and that actual injury is imminent. Such a determination may not be made on the basis of mere conjecture or supposition. 73/

The information currently available to the Commission indicates that there have been significant increases in Japanese capacity to produce EPROM's during the period under investigation. 74/ The United States is the largest market in the world for EPROM's and, therefore, we consider it likely that a significant portion of Japanese exports will continue to be directed at the U.S. market. Importers' inventories of EPROM's produced in Japan have increased significantly during the period under investigation. During the most recent period, January-June 1985, importers' inventories increased dramatically, to a level well above that recorded at yearend 1984. 75/ Moreover, the aggressive pricing of the Japanese imports, as well as recent price trends, indicate that future imports will continue to depress and suppress U.S. prices. In addition, we note that the EPROM industry, like other semiconductor producers, is extremely sensitive to declines in

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73/ Id.

74/ Report at A-11. Official Japanese statistics report capacity for all MOS memories, including EPROM's. Should this matter return for a final investigation, the Commission will attempt to obtain information specifically concerning capacity for EPROM production.

75/ Id. at A-29. There is a significant inventory overhang in the U.S. market for EPROM's.

profitability. 76/ EPROM production is highly capital intensive. Moreover, producers must continually invest large sums in research to develop "next generation" EPROM's, to keep pace with demand for memory capacity on the part of end users. Consequently, declines in profitability indicate a threat of material injury to the industry in the future. We therefore determine that there is a reasonable indication of threat of material injury by reason of allegedly LTFV imports from Japan.

76/ Petitioners apparently would argue that the imports of EPROM's from Japan threaten material injury to the domestic producers of other semiconductor products, such as logic circuits or memory circuits other than EPROM's. There is certainly some economic validity to this argument, in view of the fact that the entire semiconductor industry is extremely capital and technology demanding, and new products must be brought to market regularly to maintain the viability of the semiconductor manufacturers as a whole. Moreover, some of these products, such as logic circuits, can be extremely expensive to develop and manufacture, and may not yield adequate returns. Consequently, semiconductor manufacturers may in fact look to high volume, hopefully high return items, such as EPROM's, to fuel basic research. Nonetheless, the production of other types of memory circuits (i.e., random access memories) or logic circuits, is not a part of the domestic industry producing EPROM's under any definition of that industry. We have not relied on a threat of injury to an industry (or industries) producing products other than EPROM's in making our affirmative preliminary determination.

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ADDITIONAL VIEWS OF VICE CHAIRMAN LIEBELER

Based on the record in Investigation No. 731-TA-288 (Preliminary), I join with my colleagues in determining that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of erasable programmable read only memories (EPROM's) from Japan that are allegedly sold at less than fair value (LTFV). Because my views on causation differ from those of the majority, I offer these additional views.

In order for a domestic industry to prevail in a preliminary investigation the Commission must determine that there is a reasonable indication that the allegedly dumped imports cause or threaten to cause material injury to the domestic industry producing the like product. This analysis is usually recognized to be a two-step procedure. First, the Commission must determine whether there is a reasonable indication that the domestic industry producing the like product is suffering or is threatened with material injury. Second, the Commission must determine whether there is a reasonable indication that any injury or threat thereof is by reason of the allegedly dumped imports. Only if the Commission answers both questions in the affirmative will it make an affirmative determination in the investigation.

In Certain Red Raspberries from Canada, I set forth a framework for examining causation in Title VII investigations:[1]

> The stronger the evidence of the following . . . the more likely that an affirmative determination will be made: (1) large and increasing market share, (2) high dumping margins, (3) homogeneous products, (4) declining prices and (5) barriers to entry to other foreign producers (low elasticity of supply of other imports).[2]

These factors, when viewed together, serve as proxies for the inquiry that Congress has directed the Commission to undertake: whether foreign firms are engaging in unfair price discrimination practices that cause or threaten to cause material injury to a domestic industry.[3]

The starting point for the five factor approach is import penetration data. This factor is relevant because unfair price discrimination has as its goal, and cannot take place in the absence of, market power. The calculation of import penetration ratios in this case is complicated because different density EPROM's have been found to be like products. The staff report aggregates the information on the different densities to calculate a "total" import penetration ratio.[4] If one 128K EPROM is equal to two 64K EPROM's, then it might be more appropriate to weight the statistics so that the total import penetration ratio is calculated as a fraction of the total amount of memory (K's) sold, rather than as a fraction of the number of EPROM's sold.[5] Such an adjustment reveals that import penetration in terms of total memory increased from 1982 to 1984, then fell slightly during January-June 1985. The unweighted penetration ratio has declined more sharply and over a longer period.[6] Import penetration has remained at a moderate level throughout the period under investigation.

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[1] Inv. No. 731-TA-196 (Final), USITC Pub. 1680, at 11-19 (1985) (Additional Views of Vice Chairman Liebeler).

[2] Id. at 16.

[3] Trade Reform Act of 1974, S. Rep. 1298, 93rd Cong. 2d Sess. 179.

[4] Report at A-31.

The second factor is a high margin of dumping. The higher the margin of dumping, ceteris paribus, the more likely it is that the product is being sold below marginal cost, which is a requirement for predatory pricing, and the more likely it is that the domestic producers will be adversely affected by the dumping. The margin of dumping is determined by the Department of Commerce, but only after the Commission has made an affirmative determination in the preliminary investigation. Consequently, no computed margins are currently available. Because title VII requires the Commission's determination in a preliminary investigation to be based on the best available evidence, I have been using the margins alleged by petitioners in preliminary investigations.[7] Petitioners have alleged LTFV margins ranging between 76 and 227 percent, which would be very large if confirmed.[8]

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[5] If the different densities are not readily interchangeable, then it may be that the like product definition should be changed. During this investigation, the parties did not argue that different densities constitute separate like products. If this case proceeds to a final, I would ask the parties to address whether weighting according to densities is appropriate or required.

[6] Report at A-31. Because most of the data in this investigation is confidential, only trends will be discussed in this opinion.

The third factor is the homogeneity of the products. The more homogeneous are the products, the greater will be the effect of any allegedly unfair practice on domestic producers. Although different firms achieve different yields for EPROM's during the manufacturing process, end users have reported no significant differences in terms of characteristics of the product or associated services. Thus, I conclude that EPROM's are a relatively homogeneous good.

The fourth factor is declining prices. Evidence of declining domestic prices, ceteris paribus, might indicate that domestic producers were lowering their prices to maintain market share. Prices on EPROM's have declined substantially over the period of investigation. The domestic industry claims to be lowering its prices in order to maintain market share in the face of unfair price discrimination by the Japanese producers. The information collected thus far is not inconsistent with this allegation.[9]

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[7] See, e.g., Certain Steel Wire Nails from the People's Republic of China, Poland, and Yugoslavia, Inv. Nos. 731-TA-266-268 (Preliminary), USITC Pub. No. 1730, 22 (1985) (Views of Vice Chairman Liebeler).

[8] Report at A-5.

[9] Report at Tables 24 & 25. Japanese producers respond that the decline

(Footnote continued to page 29)

The fifth factor is barriers to entry. The presence of barriers to entry makes it more likely that a producer can gain market power. Firms in Japan are the only major exporters of EPROM's to the United States. No other countries appear to have substantial capacity to produce EPROM's at this time.

The determination must be made on a case by case basis. The best information available at this stage indicates that there is a reasonable indication that the petitioners have satisfied the five factor test. The one factor that does not favor petitioners is the absence of a large and increasing market share by imports. The absence of this factor has been outweighed at this stage by rapidly declining domestic prices. Petitioners argued that such price declines were necessary to maintain market share in the face of unfair price discrimination. I conclude that there is a reasonable indication that imports of erasable programmable read only memories (EPROM's) from Japan that are allegedly being sold at less than fair value are a cause of material injury to the domestic industry.

(Footnote continued from page 28)
in prices is the natural result of cost savings achieved through the learning curve phenomenon. If this case proceeds to a final investigation, I would be interested in further information detailing the trend in marginal and average costs in this industry. The trend in prices should also be analyzed in view of increasing domestic capacity to produce EPROM's (of increasing density) and static domestic demand.

INFORMATION OBTAINED IN THE INVESTIGATION

Introduction

On September 30, 1985, an antidumping petition was filed with the U.S. International Trade Commission and the U.S. Department of Commerce by Intel Corp. (Intel), Santa Clara, CA; Advanced Micro Devices, Inc. (AMD), Sunnyvale, CA; and National Semiconductor Corp. (National), Santa Clara, CA, on behalf of U.S. producers of erasable programmable read only memories (EPROM's). The petition alleges that imports of EPROM's from Japan are being sold in the United States at less than fair value (LTFV) and that an industry in the United States is materially injured, or is threatened with material injury, by reason of such imports.

Accordingly, effective September 30, 1985, the Commission instituted a preliminary antidumping duty investigation (investigation No. 731-TA-288 (Preliminary)) under section 733(a) of the Tariff Act of 1930 to determine whether there is a reasonable indication that an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports from Japan of EPROM's, classified in item 687.74 of the Tariff Schedules of the United States (TSUS), which are alleged to be sold in the United States at LTFV.

Notice of the institution of the Commission's investigation and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of October 9, 1985 (50 FR 41230). 1/ The conference was held in Washington, DC, on October 21, 1985. 2/

On October 21, 1985, Commerce instituted an antidumping duty investigation to determine whether EPROM's from Japan are being, or are likely to be, sold in the United States at LTFV. 3/

The Commission's briefing and vote on this investigation were held on November 8, 1985. The statute directs that the Commission make its determination within 45 days after its receipt of the petition, or in this case, by November 14, 1985.

Previous Commission Investigations

The Commission has not previously conducted an investigation specifically on or limited to EPROM's. However, the Commission conducted investigations in 1978-79 and in 1984-85, as discussed below, which included EPROM's among the subject products.

1/ A copy of the Commission's notice of institution is presented in app. A.

2/ A list of witnesses appearing at the conference is presented in app. B.

3/ A copy of Commerce's notice of institution is presented in app. C. As shown in that notice, Commerce tentatively included indirect imports from Japan within the scope of the investigation. Indirect imports are processed wafer or dice produced in Japan and assembled into finished EPROM's in another country prior to importation into the United States from the other country.

On December 7, 1978, pursuant to a request by the Subcommittee on Trade of the Senate Committee on Finance and the Subcommittee on International Finance of the Senate Committee on Banking, Housing, and Urban Affairs, the Commission instituted investigation No. 332-102 under section 332 of the Tariff Act of 1930, to examine the competitive factors influencing world trade in integrated circuits. A report on this investigation was transmitted, with confidential information included, to the Senate Committees on October 31, 1979. The Commission released a public report on the investigation on November 16, 1979. 1/ The report focused on factors affecting the international competitive position of U.S. producers of integrated circuits and presented production and trade data on integrated circuits for 1974-78. The study identified the principal economic factors which affect the growth of the U.S. industry, analyzed the influence of governments on the industry, and compared the U.S. industry with the industry in Japan during 1974-78.

On October 19, 1984, at the direction of the President, the U.S. Trade Representative (USTR) requested that the Commission prepare advice concerning the probable economic effects of providing duty-free treatment for U.S. imports of certain high-technology products (including EPROM's). On October 26, 1984, in response to the request from the USTR, the Commission instituted investigation No. 332-199; subsequently, upon enactment of the Trade and Tariff Act of 1984, which changed the investigative authority, the Commission instituted investigation No. TA-131(b)-9, effective October 30, 1984. A classified report and other classified information were transmitted to the USTR on December 14, 1984. After receiving authorization from the USTR, the Commission released a public version of the report in June 1985. 2/

In addition to these investigations, the Commission recently conducted preliminary antidumping investigation No. 731-TA-270 on imports from Japan of a related product, 64K dynamic random access memories (64K DRAM's) of the N-channel metal oxide semiconductor type. The investigation was instituted on June 24, 1985, in response to a petition filed by Micron Technology, Inc., Boise, ID, on behalf of merchant manufacturers of 64K DRAM's. On August 8, 1985, the Commission determined that there is a reasonable indication that an industry in the United States is materially injured, or threatened with material injury, by reason of imports from Japan of 64K DRAM's, of the N-channel metal oxide semiconductor type, which are alleged to be sold in the United States at LTFV. On December 2, 1985, Commerce is scheduled to determine whether 64K DRAM's from Japan, are being, or are likely to be, sold in the United States at LTFV.

1/ *Competitive Factors Influencing World Trade in Integrated Circuits, Report to the Subcommittee on International Trade of the Committee on Finance and the Subcommittee on International Finance of the Committee on Banking, Housing, and Urban Affairs of the United States Senate on Investigation No. 332-102 Under Section 332 of the Tariff Act of 1930, as Amended*, USITC Publication 1013, November 1979.

2/ *Probable Economic Effect of Providing Duty-Free Treatment for U.S. Imports of Certain High-Technology Products, Report to the President on Investigation No. TA-131(b)-9 Under Section 131(b) of the Trade Act of 1974*, USITC Publication 1705, June 1985.

The Product

Description and uses

An EPROM is a monolithic integrated circuit containing thousands of metal oxide semiconductor (MOS) transistors. 1/ Each of the transistors is equipped with four electrodes, two of which are gates that are stacked one above the other. The lower gate is surrounded by a layer of silicon dioxide and is electrically insulated or floating. When a sufficiently large voltage potential is applied to the transistor, the silicon dioxide becomes conductive, permitting electrons to cross the barrier. A storage program can be created in the EPROM by charging the floating gates of selected transistors and the gates remain charged indefinitely, even when the power is removed. The ability to retain the stored charges distinguishes EPROM's from DRAM's, which require constant refresh voltages for storage retention. A charged gate represents the binary digit "1" and a floating gate represents the digit "0."

EPROM's are often referred to as "read mostly" memories because the frequency with which the stored charges are "read" or accessed is far greater than the frequency with which the stored program is changed. To accommodate a change in the stored program, a window opening is provided in the EPROM package directly above the semiconductor die. When the floating gates of the transistors are exposed to ultraviolet light, the silicon dioxide barrier becomes more conductive, causing a leak off (erasure) of the stored charges. A new storage pattern can be created after the erasure is completed.

The transistors created in an EPROM are arranged in columns and rows, permitting individual access; the speed at which the transistors can be addressed is called access time (expressed in nanoseconds (ns), or one-billionth of a second). EPROM's sold in the U.S. market usually have an access time of 250 ns. EPROM's were first introduced in the early 1970's with a density of 2,048 transistors (2K); but over time, the densities of EPROM's have progressively increased. In 1985, EPROM's with densities of 64K, 128K, and 256K transistors account for a major share of the devices sold.

EPROM's are produced in large numbers on a single silicon wafer, each of which is called a chip or die. The process required to produce the chips includes repeated photolithographic steps and the controlled introduction of impurity atoms (dopants) into the silicon crystal. After production and separation (including testing of the dice), the good chips are wire bonded to lead frames, are final sealed in ceramic packages, and are tested again. The efficiency of producing EPROM's is determined by the size of the wafer, the size of individual die created on the wafer, the number of good chips obtained (yield) from each wafer, and the yield after final testing.

The production of EPROM's can be divided into four basic operations. The production of the chips on the wafer, called wafer fabrication, is one of the most difficult and costly operations. Following fabrication, each die on the

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1/ This investigation covers EPROM's produced using N-channel (NMOS) and complimentary (CMOS) processes. CMOS EPROM's use less power than NMOS EPROM's and are more immune to their environment. See postconference brief of NEC Corp. and NEC Electronics, Inc., pp. 14-15.

wafer is electrically tested and defective dice are marked. This stage, known as wafer sorting, is generally conducted where wafer fabrication is performed. The process of wire bonding and final sealing into a ceramic case is called assembly. Assembly operations are labor intensive and, for a number of producers, occur in developing countries. The final operations include testing and marking.

EPROM's imported into the United States from Japan and those produced by the petitioners and other domestic and foreign firms are essentially interchangeable. The devices are dual inline packages which are pin-to-pin compatible; pin spacings and case construction are standard, with few exceptions. The largest uses for EPROM's are in storage programs in computers, office machines, data processing equipment, and telecommunications equipment.

U.S. tariff treatment

The U.S. Customs Service has determined that the country of origin of an imported EPROM, for tariff purposes, is the location of the final-sealing operations, which constitute a substantial transformation to a new article of commerce. Chips produced in the United States and final sealed abroad do not bear the marking "Made in USA," but rather bear the marking of the country in which they were final sealed. Under customs regulations of the European Community and Japan, the country of origin of an EPROM is determined by the location of the wafer fabrication.

Imports of EPROM's are classified under TSUS item 687.74. This tariff item provides for monolithic integrated circuits, including MOS memory devices. Uncased or unassembled EPROM's are reported under statistical annotation 687.7405, along with all uncased monolithic integrated circuits. Cased or assembled EPROM's are reported under statistical annotation 687.7445, along with a variety of other MOS memory devices, excluding random access memories (RAM's). Other memory devices in item 687.7445 include programmable read only memories (PROM's), read only memories (ROM's), and electrically erasable programmable read only memories (EEPROM's), none of which are included within the scope of this investigation.

Effective March 1, 1985, the column 1 rate of duty on imports of EPROM's and certain other semiconductors was eliminated by Presidential Proclamation No. 5305 of February 21, 1985. Prior to that date, the rate of duty applied to imports of EPROM's was 4.2 percent ad valorem. The elimination of the duty was supported by the petitioners, all of which are members of the Semiconductor Industry Association (SIA). The rate of duty on imports into Japan of EPROM's and certain other semiconductors was also eliminated on March 1, 1985. The U.S. rate of duty applied to imports from certain Communist countries enumerated in TSUS general headnote 3(d) (col. 2) is 35 percent ad valorem.

Nature and Extent of Alleged Sales at LTFV

According to the petition, imports from Japan of EPROM's of all densities are being sold in both the U.S. and Japanese markets at prices that are below the costs of production in Japan. The petition presents cost-of-production estimates (based on a model of Hitachi's costs prepared by an independent consultant) for 64K, 128K, and 256K EPROM's during April-June 1985. 1/ The petitioner constructed Japanese foreign market values of $3.95, $5.53, and $6.85 for the 64K, 128K, and 256K EPROM's, respectively, by adding an 8-percent profit margin to the estimated net costs of production. These constructed values are compared with both weighted-average resale prices of imports from Japan of EPROM's sold to end customers in the United States in August 1985 and calculated estimates of net U.S. distributor prices (weighted resale prices less a 25 percent distributor's commission). On the basis of these comparisons, the petition alleges U.S. end customer and U.S. distributor dumping margins for 64K, 128K, and 256K EPROM's as follows (in percent):

	U.S. end customer	U.S. distributor
64K	128.3	203.9
128K	145.8	227.2
256K	76.6	135.4

The Domestic Market

U.S. producers

There are nine known firms that produced either uncased or cased EPROM's in the United States during January 1982-June 1985. 2/ Producers of uncased EPROM's perform wafer fabrication in the United States and assembly in the United States or in foreign countries, whereas producers of cased EPROM's perform wafer fabrication either in the United States or offshore and conduct assembly operations in the United States. As detailed in the following tabulation, * * * firms produced uncased EPROM's in the United States, * * * of which also produced cased EPROM's; * * * produced cased EPROM's in the United States, using wafers that were manufactured in Japan. As shown in the tabulation, * * * accounted for * * * percent of U.S. producers' 1984 domestic shipments of cased EPROM's.

The domestic content share 3/ of U.S. producers' sales of cased EPROM's varied widely. Over the product life cycle, the cost of producing the uncased EPROM (wafer fabrication) decreases as a share of producing the cased EPROM because in absolute terms these costs decline while assembly costs remain

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1/ According to the petition, production of imports from Japan of EPROM's sold in the United States in August 1985 would have started approximately 10 to 12 weeks prior to sale. Therefore, the constructed values of the products are based on production costs during April-June 1985.

2/ * * * ceased production of uncased EPROM's in January-March 1983.

3/ The term domestic content refers to the ratio of domestic product costs to total cost of goods sold for U.S. producers' operations relating to the sale of EPROM's which were at least in part produced in U.S. establishments.

Firm and Location	Producer of uncased EPROM's (U.S. wafer fabrication and foreign assembly), by density	Producer of cased EPROM's (U.S. wafer fabrication and U.S. assembly), by density	Producer of cased EPROM's (Japanese wafer fabrication and U.S. assembly), by density	Share of U.S. producers' 1984 domestic shipments of cased EPROM's (in percent)	Domestic content of U.S. producers' 1984 sales of cased EPROM's (in percent)
Advanced Micro Devices, Inc Sunnyvale, CA					
Intel Corp Santa Clara, CA					
Fujitsu Microelectronics, Inc (Fujitsu) San Diego, CA					
Mostek Corp (Mostek) Carrollton, TX					
Motorola, Inc (Motorola) Schaumburg, IL					
National Semiconductor Corp. Pittsubrgh, PA					
Rockwell International Corp (Rockwell) Pittsburgh, PA					
SEEQ Technology, Inc (SEEQ) San Jose, CA					
Texas Instruments Inc (TI) Dallas, TX					

* * * * * * *

fairly constant. 1/ For those firms only producing uncased EPROM's in the United States, the domestic content share ranged from * * * percent to * * * percent in 1984. * * * reported that domestic costs represented * * * percent of its total cost of goods sold in 1984.

In addition to the petitioners, * * * support the petition in this investigation. * * * takes no stance on the petition and stated in its response to the Commission's questionnaire that "* * *." Fujitsu does not support the petition in the subject investigation and was represented by counsel at the Commission's conference in opposition to the imposition of antidumping duties.

U.S. importers

Information provided by the U.S. Customs Service does not separately identify Japanese importers of uncased or cased EPROM's. EPROM's are reported under TSUS statistical annotations, which include other uncased monolithic integrated circuits and MOS memory devices. The Commission sent importers' questionnaires to 26 firms believed to import uncased or cased EPROM's from Japan. According to the data submitted, 2/ there were 16 importers of EPROM's from Japan from January 1982 to June 1985, as shown in the following tabulation:

Importer	Location	Share of 1984 imports of cased and uncased EPROM's from Japan (in percent)
EPSON America, Inc. 1/	Torrance, CA	***
Fujitsu Microelectronics, Inc.	San Diego, CA	***
Hitachi America, Inc. (Hitachi)	San Jose, CA	***
Matsushita Electric Corp. of America	Secaucus, NJ	***
Mitsubishi Electronics America (MELA)	Torrance, CA	***
NEC Electronics, Inc.	Mountain View, CA	***
Nissei Sangyo America	Rolling Meadows, IL	***
Oki Semiconductor, Inc.	Sunnyvale, CA	***
Toshiba America, Inc.	Tustin, CA	***
* * *	* * *	***
* * *	* * *	***
* * *	* * *	***
* * *	* * *	***
* * *	* * *	***
* * *	* * *	***
* * *	* * *	***

1/ EPSON America, Inc., imports from Japan only preprogrammed EPROM's to replace defective EPROM's integrated into "EPSON"-brand and certain private-label computers and printers.

1/ See petitioners' postconference brief, p. 13.

2/ * * * of the 26 firms responded to the Commission's questionnaire. * * *.

Of the 16 importers of EPROM's from Japan reporting, * * * firms are related to Japanese producers of EPROM's. * * * accounted for * * * percent of 1984 total reported cased and uncased EPROM's imported from Japan. * * * import from Japan uncased EPROM's to produce cased EPROM's in the United States. 1/ The * * * U.S. producers that import EPROM's from Japan, * * *, are the only firms to import cased EPROM's that were produced from uncased EPROM's fabricated in Japan and assembled in third countries.

Apparent U.S. consumption

U.S. consumption of cased EPROM's was compiled from data submitted in response to questionnaires of the U.S. International Trade Commission. The consumption data are composed of reported shipments of cased EPROM's, whether domestically produced or imported, in the U.S. market by each of the known major entities (producers and importers) supplying EPROM's to the market. The nine producers that submitted data together accounted for * * * percent of the cased EPROM's that were produced at least in part in the United States in 1984; while 11 importers, together accounting for an estimated * * * percent of 1984 imports from Japan of EPROM's, provided usable data. The consumption totals include producers' and importers' shipments of EPROM's, but exclude shipments from small importers that were not surveyed by the Commission, resales such as sales from inventory by customers, and so-called "grey-market" sales. 2/

Data on consumption of uncased EPROM's are not presented because uncased EPROM's produced in the United States are exported to foreign affiliates or subcontractors or are transferred to domestic affiliates for the assembly of cased EPROM's, and uncased EPROM's from Japan are imported for assembly in the United States. 3/

Total apparent U.S. consumption of cased EPROM's increased by 86 percent from 1982 to 1984, rising by 56 percent from 1982 to 1983 and by 19 percent from 1983 to 1984 (table 1). Consumption of cased EPROM's with densities under 64K increased by 18 percent from 1982 to 1983, but declined by 16 percent from 1983 to 1984, while apparent U.S. consumption of cased EPROM's with densities of 64K and 128K increased * * * from 1982 to 1984. * * *. Despite increases in consumption of cased EPROM's with densities of 128K and above, total consumption of cased EPROM's declined by 4 percent during January-June 1985, compared with consumption during the corresponding period of 1984, as a result of the 20-percent and * * *-percent declines in consumption of cased EPROM's with densities under 64K and of 64K, respectively.

1/ In 1984, * * * imported * * * uncased EPROM's, which were sold as uncased EPROM's in the United States.

2/ The term "grey-market" sales generally refers to spot-market sales that are made to brokers.

3/ Small quantities of uncased EPROM's imported from Japan are sold to unrelated parties that assemble hybrid integrated circuits; transcript of the conference on investigation No. 731-TA-288 (Preliminary), p. 18.

Table 1.—EPROM's, cased: Apparent U.S. consumption, by densities, 1982-84, January-June 1984, and January-June 1985

(In thousands of units)

Item	1982	1983	1984	January-June— 1984	January-June— 1985
Under 64K	30,229	35,796	30,203	16,908	13,559
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	36,582	56,989	67,921	35,162	33,849

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Channels of distribution

EPROM producers supply the merchant market (open market) through three channels of distribution: (1) sales to end users, i.e., original equipment manufacturers (OEM's) and circuit board stuffers (2) sales to distributors, and (3) spot sales. Sales to OEM's are either factory direct or through a factory representative. Both * * * have replaced their factory reps with a factory direct sales force, whereas, * * * continues to use factory reps. Sales to "key accounts" generally are negotiated by high level executives of the vendor firm. According to * * *, roughly * * * purchasers generate * * * percent of the EPROM industry's shipment volume. At least half of these purchasers could be termed "key accounts." * * * "key accounts" include such purchasers as * * *. Sales of EPROM's to end users accounted for 48 percent of total domestic shipments in 1984 and sales of EPROM's to distributors amounted to 41 percent. 1/ Casual sales, i.e., spot market sales, account for the balance. 2/

Factory direct sales to OEM's are long-term contract sales. Contract awards are based on bids made in response to a request for quotes (RFQ's) by an OEM. Such contracts range from 3 months to 1 year in length and call for scheduled deliveries, usually monthly, during the contract period. 3/ Most factory-direct contract sales provide for price renegotiation on the downside of the demand cycle. 4/ Factory direct sales to board stuffers also are based

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1/ For domestic producers the distribution of sales volume among the three channels ranged from * * * to * * * percent to end users, * * * to * * * percent to distributors, and * * * to * * * percent to their "spot market."

2/ Domestic producers and importers agree that "spot-market" sales increase as a share of total shipments in a down market.

3/ July-September of each year is the usual time for negotiating contracts with OEM's. The contract period generally begins in June of the coming year.

4/ Contract sales to * * * are made on a central purchase basis and are an exception to this pattern. Prices to * * * are rarely renegotiated during the contract period. In contrast, OEM's such as * * * renegotiate price during the contract period.

on competing bids. Board stuffers issue RFQ's more frequently than OEM's and award purchase orders to winning bidders on a project-by-project basis. Releases are made for shipment to scheduled production run rates. Prices are subject to renegotiation on a "meet-competition" basis.

Sales to distributors provide broad market coverage and access to smaller accounts. Although authorized distributors have both stocking and reporting requirements, they also have price protection. The relatively short life cycle of a particular EPROM (because of the fast-paced technology) and the volatile "boom and bust" nature of the market for EPROM's strongly affect price. Consequently, the industry practice is to offer price protection to authorized distributors. Such protection takes the form of "meet-competition" allowances, or as * * * terms it, a "d.p.a." (distributor price authorization). This policy enables distributors to quote and sell competitively and supply from inventory purchased at higher prices.

The casual or spot market is the third channel of distribution. This market includes sales to board stuffers, brokers, small OEM's, and so-called walk-ins. These purchasers are making a one-time purchase for quick delivery. Terms are usually cash, but can be on credit. Spot-market purchasers may call directly to the factory, call a manufacturer's rep, call a distributor, or buy over the counter. This market is sometimes called the "grey market," especially referring to sales to brokers. Brokers take a position (take title) and look for a price that allows resale at a profit. TI characterizes the grey market as a "wheeler-dealer" channel of distribution. Intel terms the "grey market" disruptive, particularly in a down market. Pressure on prices is created by grey-market supply coming into the market at sharply lower prices. Brokers, buying for OEM's, board stuffers, or distributors, procure their grey-market supply from surplus inventory held by OEM's and distributors and from offshore oversupply. * * * notes that Japanese EPROM producers "* * *". 1/

Major OEM accounts during the last cyclical downturn did not procure from grey-market vendors. They viewed the potential problems associated with the quality of the incoming product as extremely serious. Grey-market supply was known to include mislabeled, stolen, and even rejected products. Currently, according to * * *, significant grey-market supply is offered complete with offshore producers' quality seals on the boxes. Consequently, * * * states that major accounts are now procuring part of their requirements with grey-market vendors.

The Industry in Japan

According to the petitioners, Dataquest reported that eight firms produce EPROM's in Japan. According to these data, the largest of these firms is Hitachi, Ltd., which accounted for 33 percent of the volume of U.S. shipments produced by Japanese firms in 1984, followed by Mitsubishi Electric Co. (25

1/ In investigation No. 731-TA-270 (Preliminary), * * * described this same pattern with respect to 64K DRAM's. According to * * *, Japanese producers such as * * * insulate their participation in the grey market by selling to trading companies who, in turn, sell to brokers and wholesalers who resell to minor OEM's, board stuffers, distributors, and others.

percent), Fujitsu, Ltd. (21 percent), and Nippon Electric Co. (13 percent). Along with the Toshiba Corp. (5 percent), these firms accounted for 97 percent of U.S. shipments of EPROM's manufactured by Japanese producers.

Official Japanese statistics published on semiconductors are disaggregated only to the level of MOS memories and do not separately provide for EPROM's. Data on production of MOS memories in Japan are shown in table 2.

Production of MOS memories in Japan increased by 138 percent from 1982 and 1983, and by 56 percent from 1983 to 1984. The ability of producers in Japan to increase MOS memory production from 311 million units in 1982 to 1.2 billion units in 1984 suggests that a significant increase in production capacity occurred during this period. In a study of Japanese semiconductor producers, John J. Laszlo, Jr., of the investment advisory firm Hambrecht & Quist, stated the following:

> "Since 1982, the major Japanese semiconductor companies have added capacity at a faster rate than have the major U.S. semiconductor suppliers. The majority of the spending has been allocated to MOS memory production. . . Currently, there is excess capacity in Japan. Capital spending increased an estimated 100% in 1984 over 1983 and is expected to increase 25% more in 1985, further aggravating the over-capacity situation." 1/

Table 2.—MOS memories: Production in Japan, 1982-84

Item	1982	1983	1984
Quantity——1,000 units	311,477	740,621	1,152,252
Value——million yen	140,873	367,256	753,711
Unit value——yen per unit	452	496	654

Source: Electronics Industries Association of Japan.

Consideration of Alleged Material Injury

Data on the EPROM industry contained in this section of the report have been compiled from questionnaire responses submitted by the nine firms producing either uncased or cased EPROM's in the United States. Separate data on production, shipments, and inventories for uncased and cased

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1/ John J. Laszlo, The Japanese Semiconductor Industry: Aggressive Capital Expansion Could Deleteriously Impact Industry Profitability in 1985, January 1985, as quoted in the petition in investigation No. 731-TA-288 (Preliminary), p. 33.

EPROM's are presented. Data on shipments and inventories of cased EPROM's are further presented separately on the basis of the country of origin of the uncased EPROM. Data on employment and the industry's financial experience are presented separately for firms that perform wafer fabrication in the United States, producing uncased EPROM's used to make cased EPROM's, and for Fujitsu * * * that does not perform wafer fabrication of uncased EPROM's in the United States.

Production, capacity, and capacity utilization of integrated circuits

In its questionnaire, the Commission requested data on capacity and production of all integrated circuits because the manufacturing facilities used to produce EPROM's are basically the same as those that can be used to produce all integrated circuits. Six producers provided data on capacity and production of all integrated circuits on the basis of die equivalents, while two producers provided these data on the basis of 4-inch wafer start equivalents. Table 3 presents separately integrated circuit capacity and production based on the reporting method used.

Production of all integrated circuits increased steadily from 1982 to 1984, by * * * percent for producers reporting on the basis of die equivalents and by * * * percent for those reporting on the basis of 4-inch wafer start equivalents. Production for those reporting on the basis of die equivalents increased slightly during January-June 1985, compared with production during the corresponding period of 1984. Production for firms reporting on the basis of 4-inch wafer start equivalents decreased by * * * percent during January-June 1985, compared with production during the corresponding period of 1984.

U.S. producers' average-for-period capacity followed a similar upward trend from 1982 to 1984, rising by * * * percent for those producers reporting on the basis of 4-inch wafer start equivalents and by * * * percent for those reporting on the basis of die equivalents, despite a * * *-percent decline from 1982 to 1983 for those reporting on the basis of die equivalents. Capacity for producers reporting in die equivalents continued to increase by * * * percent during January-June 1985, compared with capacity during the corresponding period of 1984, whereas, capacity for producers reporting in 4-inch wafer start equivalents declined by * * * percent during Janu[illegible]June 1985, compared with capacity during the corresponding period of 1984.

Capacity utilization for those producers reporting on the basis of die equivalents rose steadily from 69.1 percent in 1982 to 89.0 percent in 1984, because production by these producers increased at a faster rate than their average-for-period capacity. For producers reporting on the basis of 4-inch wafer start equivalents, capacity utilization rose slightly from 85.7 percent in 1982 to 86.3 percent in 1983 despite an * * *-percent increase in production from 1982 to 1983. From 1983 to 1984, because production for these producers continued to increase at a faster rate than capacity, capacity utilization rose to 90.0 percent in 1984. The ratio of production to capacity for U.S. producers reporting on both bases showed declines during January-June 1985, compared with capacity utilization during the corresponding period of 1984.

Table 3.—Integrated circuits: U.S. production, average-for-period capacity, and capacity utilization, 1982-84, January-June 1984, and January-June 1985

Item	1982	1983	1984	January-June—	
				1984	1985
Producers reporting on the basis of die equivalents:					
Production——1,000 units—	***	***	***	***	***
Average-for-period capacity 1,000 units—	***	***	***	***	***
Capacity utilization——percent—	69.1	88.5	89.0	94.4	80.2
Producers reporting on the basis of 4-inch wafer start equivalents:					
Production——1,000 units—	***	***	***	***	***
Average-for-period capacity 1,000 units—	***	***	***	***	***
Capacity utilization——percent—	85.7	86.3	90.0	99.3	61.4

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Production of EPROM's

Data on production of uncased and cased EPROM's were compiled from responses to the Commission's questionnaire submitted by the * * * firms producing uncased EPROM's and the * * * firms producing cased EPROM's in the United States.

Total U.S. production of uncased EPROM's increased steadily from 1982 to 1984, rising by 13 percent from 1982 to 1983 and by 24 percent from 1983 to 1984 (table 4). From 1982 to 1984, while production of uncased 64K EPROM's rose by * * * percent and production of uncased EPROM's with densities over 64K increased * * *, production of uncased EPROM's with densities under 64K declined by 11 percent. The level of production of uncased EPROM's of all densities rose during January-June 1985, compared with the production level during the corresponding period of 1984, rising * * * for uncased EPROM's with densities of 256K and over 256K.

Total U.S. production of cased EPROM's also followed an upward trend from 1982 to 1984, rising by * * * percent from 1982 to 1983 and by * * * percent from 1983 to 1984. There was * * * U.S. production of cased 128K EPROM's in 1982 and * * * production of cased EPROM's with densities of 256K and over 256K from January 1982 to June 1985. Production of cased EPROM's with densities of 64K and 128K showed * * * increases, whereas, production of cased EPROM's with densities under 64K declined * * * from 1982 to 1984. Similarly, production of cased EPROM's with densities of 64K and 128K increased by * * * percent and by * * * percent, respectively, during January-June 1985, compared with production during January-June 1984. During January-June 1985, cased EPROM's with densities under 64K were * * *.

Table 4.—EPROM's, uncased and cased: U.S. production, by densities, 1982-84, January-June 1984, and January-June 1985

(In thousands of units)

Item	1982	1983	1984	January-June— 1984	January-June— 1985
Uncased:					
Under 64K	38,914	35,481	34,681	16,760	20,631
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	54,691	62,049	77,028	37,174	54,301
Cased:					
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	***	***	***	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Producers' shipments

As shown in table 5, U.S. producers' total shipments of uncased EPROM's increased steadily from 1982 to 1984, rising by * * * percent from 1982 to 1983 and by * * * percent from 1983 to 1984. Total shipments of uncased EPROM's also increased, by * * * percent, during January-June 1985, compared with total shipments during the corresponding period of 1984. Total shipments of uncased EPROM's with densities under 64K declined by * * * percent from 1982 to 1984, but rose by * * * percent during January-June 1985, compared with total shipments during the corresponding period of 1984. Total shipments of uncased 64K EPROM's followed a reverse trend from 1982 to 1984, rising by * * * percent. Total shipments of uncased 64K EPROM's rose by * * * percent during January-June 1985, compared with total shipments during the corresponding period of 1984. Total shipments of uncased 128K EPROM's increased * * * from 1982 to 1984 and continued to rise, by * * * percent during January-June 1985, compared with total shipments during the corresponding period of 1984. Similarly, total shipments of uncased EPROM's with densities of 256K and over 256K showed * * *. Exports of uncased EPROM's, accounting for approximately * * * percent of total shipments, followed the trends for total shipments.

Table 5.—EPROM's, uncased: U.S. producers' shipments, by densities, 1982-84, January-June 1984, and January-June 1985

* * * * * * *

As shown in table 6, U.S. producers' total shipments of cased EPROM's, at least some portion of which was produced in the United States, increased by 38 percent from 1982 to 1983 and again by 11 percent from 1983 to 1984, largely because of increases in total shipments of EPROM's with densities of 64K, 128K, and 256K. Total shipments of cased EPROM's declined by 2 percent during January-June 1985, compared with total shipments during the corresponding period of 1984, as a result of the 9-percent and * * *-percent declines in total shipments of cased EPROM's with densities of under 64K and of 64K, respectively.

Domestic shipments of cased EPROM's followed the trend of total shipments from 1982 to 1984, rising by * * * percent from 1982 to 1983 and by * * * percent from 1983 to 1984. Domestic shipments of cased EPROM's of all densities increased from 1982 to 1984 despite an * * *-percent decline in domestic shipments of cased EPROM's with densities under 64K from 1983 to 1984. Domestic shipments of cased EPROM's increased slightly during January-June 1985, compared with domestic shipments during the corresponding period of 1984, because domestic shipments of cased EPROM's with densities of 128K and over 128K showed increases. Domestic shipments of 128K EPROM's rose by * * * percent during January-June 1985, compared with domestic shipments during the corresponding period of 1984, despite a * * *-percent fall in domestic shipments of cased 128K EPROM's made from uncased EPROM's produced in Japan (table 7).

U.S. producers' export shipments of cased EPROM's, * * *, increased by 13 percent from 1982 to 1983, but fell by 22 percent from 1983 to 1984. As a result of this decline, the 1984 level of export shipments was 13 percent below the level of exports in 1982. From 1982 to 1984, while exports of cased EPROM's with densities of 128K and over 128K increased * * *, export shipments of cased EPROM's with densities under 64K and of 64K, which together accounted for * * * percent of exports in 1982 and * * * percent in 1984, declined by * * * percent and * * * percent, respectively.

As shown in tables 7, 8, and 9, the unit values of both domestic and export shipments of cased EPROM's of each density declined from 1982 to 1984. The average unit value of cased EPROM's of all densities showed an upward trend as a result of the introduction of more highly valued EPROM's with higher densities in 1983 and 1984. The unit values of domestic shipments of cased EPROM's of all densities made from uncased EPROM's produced in Japan were consistently lower than the unit values of domestic shipments of cased EPROM's made from U.S.-produced uncased EPROM's, with the exception of the unit value of 1982 domestic shipments of cased EPROM's with densities under 64K. The unit values of export shipments of cased EPROM's, * * *, were generally lower than the unit values of domestic shipments of such EPROM's, with the exception of the unit values for 64K EPROM's during January-June 1984, for 256K EPROM's in 1983, and for EPROM's with densities over 256K in 1984 and during January-June 1985.

Table 6.—EPROM's, cased: U.S. producers' shipments, by densities, 1982-84, January-June 1984, and January-June 1985

(In thousands of units)

Item	1982	1983	1984	January-June— 1984	January-June— 1985
Domestic shipments:					
Under 64K 1/	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	***	***	***	***	***
Intracompany and intercompany transfers:					
Under 64K	***	***	***	***	***
64K 1/2/3/	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	***	***	***	***	***
Export shipments:					
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	10,332	11,660	9,026	***	***
Total shipments:					
Under 64K	31,685	35,159	31,397	16,787	15,301
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	40,899	56,605	62,784	32,625	32,095

1/ Includes small quantities of cased EPROM's made from uncased EPROM's produced in Japan and assembled in third countries.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 7.—EPROM's, cased made from uncased EPROM's produced in Japan: U.S. producers' domestic shipments, by densities, 1982-84, January-June 1984, and January-June 1985

* * * * * * *

Table 8.—EPROM's, cased made from U.S.-produced uncased EPROM's: U.S. producers' domestic shipments, by densities, 1982-84, January-June 1984, and January-June 1985

Item	1982	1983	1984	January-June— 1984	January-June— 1985
			Quantity (1,000 units)		
Under 64K 1/	2/ 23,873	2/3/ 28,893	2/3/ 26,792	3/ 14,315	12,995
64K 1/2/	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	28,759	42,445	50,416	26,067	26,550
			Value (1,000 dollars)		
Under 64K	93,950	102,405	103,737	55,079	42,689
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	159,595	233,511	354,288	180,396	152,010
			Unit value		
Under 64K	$3.94	$3.54	$3.87	$3.84	$3.29
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Average	5.55	5.50	7.03	6.92	5.72

1/ Includes small quantities of cased EPROM's made from uncased EPROM's produced in Japan and assembled in third countries.

2/ Includes small quantities of cased EPROM's made from uncased EPROM's produced and assembled in Japan.

3/ Includes small quantities of cased EPROM's made from uncased EPROM's produced and assembled in third countries.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 9.—EPROM's, cased made from U.S.-produced uncased EPROM's: U.S. producers' export shipments, by densities, 1982-84, January-June 1984, and January-June 1985

Item	1982	1983	1984	January-June— 1984	January-June— 1985
	Quantity (1,000 units)				
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	10,332	11,660	9,026	***	***
	Value (1,000 dollars)				
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	55,176	63,517	69,203	***	***
	Unit value				
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Average	$5.34	$5.45	$7.67	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

U.S. producers' foreign affiliates' drop shipments

Data on U.S. producers' export shipments do not include drop shipments, which are shipments to third markets made directly by U.S. producers' foreign affiliates assembling the U.S.-produced uncased EPROM's. U.S. producers' foreign affiliates' drop shipments, which totaled roughly * * * percent of their parent firms' U.S. shipments, are presented in table 10. Total drop shipments of cased EPROM's fell by * * * percent from 1982 to 1983, but * * * from 1983 to 1984. Drop shipments of cased EPROM's with densities under 64K accounted for * * * percent of total drop shipments in 1982 and for * * * percent in 1984. Total drop shipments more than doubled during January-June 1985, compared with drop shipments during the corresponding period of 1984. During January-June 1985, drop shipments of cased EPROM's with densities under 64K accounted for * * * percent of total drop shipments, while cased EPROM's with densities of 64K, 128K, and 256K represented * * * percent, * * * percent, and * * * percent, respectively, of total drop shipments.

U.S. producers' inventories

U.S. producers' end-of-period inventories of uncased EPROM's declined by * * * percent from 1981 to 1982 and again by * * * percent from 1982 to 1983, before increasing by * * * percent from 1983 to 1984 (table 11). Inventories of uncased EPROM's with densities under 64K accounted for * * * percent of total inventories in 1981 and for * * * of total inventories in 1982 and 1983. In 1984, inventories of uncased EPROM's with densities under 64K represented * * * percent of total end-of-period inventories, while inventories of 64K and 128K uncased EPROM's accounted for * * * percent and * * * percent, respectively. From 1981 to 1984, inventories of uncased EPROM's with densities under 64K decreased steadily, falling by * * * percent, whereas, inventories of uncased EPROM's with densities of 64K and over 64K rose fairly steadily. End-of-period inventories of uncased EPROM's of all densities, most notably under 64K and 128K, increased * * * during January-June 1985, compared with inventories during the corresponding period of 1984.

U.S. producers' end-of-period inventories of cased EPROM's increased from 1981 to 1984, rising by 75 percent from 1981 to 1982, rising by 29 percent from 1982 to 1983, and falling by 1 percent from 1983 to 1984 (table 12). End-of-period inventories of cased EPROM's made from U.S.-produced uncased EPROM's account for * * * share of end-of-period inventories of cased EPROM's. In 1981, 1983, and 1984, the * * * of inventories of cased EPROM's made from uncased EPROM's produced in the United States are of EPROM's with densities under 64K. These inventories of cased EPROM's with densities under 64K increased by * * * percent from 1981 to 1982, rose by * * * percent from 1982 to 1983, and fell by * * * percent from 1983 to 1984. Inventories of cased 64K EPROM's produced from U.S.-made uncased EPROM's * * * from 1981 to 1982, declined by * * * percent from 1982 to 1983, and fell by * * * percent from 1983 to 1984. End-of-period inventories of cased EPROM's of all densities rose during January-June 1985, compared with inventories during the corresponding period of 1984.

Table 10.—EPROM's, cased: U.S. producers' foreign affiliates' drop shipments to third markets, by densities, 1982-84, January-June 1984, and January-June 1985

* * * * * * *

Table 11.—EPROM's, uncased: U.S. producers' end-of-period inventories, by densities, 1981-84, January-June 1984, and January-June 1985

* * * * * * *

Table 12.—EPROM's, cased: U.S. producers' end-of-period inventories, by country of origin of uncased EPROM's used to produce cased EPROM's and by densities, 1981-84, January-June 1984, and January-June 1985

(In thousands of units)

Item	1981	1982	1983	1984	January-June— 1984	January-June— 1985
Made from uncased EPROM's produced in the United States:						
Under 64K 1/	***	***	***	***	***	***
64K 1/2/3/	***	***	***	***	***	***
128K	***	***	***	***	***	***
256K	***	***	***	***	***	***
Over 256K	***	***	***	***	***	***
Total	***	***	***	***	***	***
Made from uncased EPROM's produced in Japan:						
Under 64K	***	***	***	***	***	***
64K	***	***	***	***	***	***
128K	***	***	***	***	***	***
256K	***	***	***	***	***	***
Over 256K	***	***	***	***	***	***
Total	***	***	***	***	***	***
Grand total	2,934	5,143	6,452	6,552	4,996	8,566

1/ Includes small quantities of cased EPROM's made from uncased EPROM's produced in Japan and assembled in third countries.

2/ Includes small quantities of cased EPROM's made from uncased EPROM's produced and assembled in Japan.

3/ Includes small quantities of cased EPROM's made from uncased EPROM's produced and assembled in third countries.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Producers' employment and wages

The number of all production and related workers employed in U.S. establishments producing uncased EPROM's rose steadily from 1982 to 1984. * * *, however, reported a permanent reduction of * * * workers in * * * because of falling demand in the marketplace for semiconductor products, and * * * reported plant shutdowns in * * * to minimize costs (table 13). The number of workers engaged in the production of uncased EPROM's also increased steadily from 1982 to 1984, rising by 23 percent from 1982 to 1983 and by 32 percent from 1983 to 1984. The number of workers engaged in the production of all products rose slightly, while the number of workers engaged in the production of EPROM's increased by 16 percent during January-June 1985, compared with the number of workers during the corresponding period of 1984. During January-June 1985, * * * reported permanent or indefinite reductions in the number of production workers due to layoffs or plant shutdowns. During July-October 1985, * * * reported plant shutdowns, and * * * also reported layoffs of * * * workers.

Hours worked by all production and related workers also followed an upward trend from 1982 to 1984, rising by 48 percent. * * *. From 1982 to 1984, hours worked by workers engaged in the production of EPROM's rose by 62 percent; they increased again during January-June 1985, compared with hours worked during January-June 1984. During July-August 1985, * * *.

Wages and total compensation paid to workers involved in the production of EPROM's followed the upward trends of wages and total compensation paid to all production and related workers, rising by 92 percent and 99 percent, respectively, from 1982 to 1984. * * *. Wages and total compensation paid to workers engaged in the production of all products and to those involved in the production of EPROM's rose during January-June 1985, compared with wages and total compensation during January-June 1984. * * *. During September-October 1985, * * *.

Employment and wages and total compensation paid to workers engaged in the production of all products and of EPROM's at Fujitsu, which does not produce the uncased EPROM's used to make cased EPROM's, followed the trends for those firms producing uncased EPROM's, although its hourly compensation rates were about half those of the firms producing uncased EPROM's (table 14).

Table 13.—Average number of production and related workers employed in U.S. establishments producing uncased EPROM's, 1/ hours worked by such workers, wages paid, total compensation paid, and average hourly compensation paid, 1982-84, January-June 1984, and January-June 1985

Item	1982	1983	1984	January-June—	
				1984	1985
Average number of production and related workers producing—					
All products————	10,684	12,663	15,361	14,679	14,917
EPROM's————	2,063	2,544	3,349	3,135	3,642
Hours worked by production and related workers producing—					
All products——1,000 hours—	23,180	27,384	34,205	16,333	20,850
EPROM's————do——	4,324	5,292	6,999	3,304	5,735
Wages paid to production and related workers producing—					
All products-1,000 dollars—	208,030	257,795	359,888	164,532	186,507
EPROM's————do——	42,618	53,719	81,913	36,556	45,362
Total compensation paid to production and related workers producing—					
All products-1,000 dollars—	255,523	318,969	451,301	207,633	231,778
EPROM's————do——	49,560	63,068	98,640	44,524	53,890
Average hourly compensation paid to production and related workers producing—					
All products———per hour—	$11.02	$11.65	$13.19	$12.71	$11.12
EPROM's————do——	11.46	11.92	14.09	13.48	9.40

1/ Excludes data for * * *.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 14.—Average number of production and related workers employed in U.S. establishments by Fujitsu, hours worked by such workers, wages paid, total compensation paid, and average hourly compensation paid, 1982-84, January-June 1984, and January-June 1985

* * * * * * *

Financial experience of U.S. producers

Eight U.S. firms which perform wafer fabrication of EPROM's in the United States (i.e., produce uncased EPROM's), and one firm, Fujitsu, which does not perform wafer fabrication but conducts assembly operations in the United States, provided income-and-loss data on their total operations (including the foreign costs) relating to their sale of cased EPROM's.

Operations on EPROM's.—Aggregate data of the eight U.S. firms which perform wafer fabrication in the United States, and which accounted for * * * percent of U.S. shipments of cased EPROM's in 1984, are presented in table 15. Net sales of EPROM's increased by 89 percent from $249.5 million in 1982 to $471.0 million in 1984. During the interim period ended June 30, 1985, total net sales declined by 16 percent to $160.8 million, compared with $191.2 million during the corresponding period of 1984.

From 1982 to 1984, net sales of EPROM's with densities under 64K declined by * * * percent, while net sales of 64K EPROM's increased by * * * percent (table 16). In 1984, net sales of 128K EPROM's were almost * * * times the level of net sales (* * *) in 1982. Net sales of 256K EPROM's more than quadrupled from their first year sales of * * * in 1983 to * * * in 1984. The commercial sales of EPROM's with densities over 256K started in 1984. During the interim period ended June 30, 1985, net sales of under 64K, 64K, and 128K EPROM's declined by * * * percent, by * * * percent, and by * * * percent, respectively, compared with the level of sales during the corresponding period of 1984. During the same period, net sales of EPROM's with densities of 256K and over 256K increased sharply, by almost * * * and by * * *, respectively.

Aggregate gross profits on total EPROM operations rose sharply from $68.8 million in 1982 to $223.4 million in 1984, or by 225 percent. This rise was primarily due to cost of goods sold increasing less rapidly than net sales. Cost of goods sold declined from 72.4 percent of net sales in 1982 to 52.6 percent of net sales in 1984. As a result of this reduction in costs, the gross profit margin increased from 27.6 percent in 1982 to 47.4 percent in 1984. During the interim period ended June 30, 1985, such gross profits fell sharply to $37.4 million, or 23.2 percent of net sales, compared with gross profits of $98.0 million, or 51.3 percent of net sales, during the corresponding period of 1984. As a share of cost of goods sold, foreign product costs declined steadily from 42.2 percent in 1982 to 29.0 percent during the interim period ended June 30, 1985.

During 1982-84, gross profit margins for EPROM's with densities under 64K * * * for the aggregate gross profit margins, but such margins for 64K EPROM's * * * and gross profit margins for 128K and 256K EPROM's showed a * * * trend. However, the gross profit margin of all EPROM's, with densities from under 64K through over 256K, experienced a sharp drop during the interim period ended June 30, 1985, compared with this margin during the corresponding period of 1984.

Table 15.—Income-and-loss experience of 8 U.S. producers 1/ on their operations relating to the sale of EPROM's, the uncased EPROM of which was produced in their U.S. establishments, accounting years 1982-84, and interim periods ended June 30, 1984, and June 30, 1985

Item	1982	1983	1984	Interim period ended June 30— 1984	Interim period ended June 30— 1985
Net sales—1,000 dollars	249,487	330,761	471,006	191,164	160,837
Cost of goods sold:					
Foreign product costs 2/ 1,000 dollars	76,267	75,374	83,428	30,339	35,738
Domestic product costs 2/—do	104,399	109,737	164,132	62,840	87,708
Total—do	180,666	185,111	247,560	93,179	3/ 123,446
Gross profit or (loss)—do	68,821	145,650	223,446	97,985	37,391
Research and development expenses 1,000 dollars 4/	11,149	11,067	12,918	3,990	7,661
General, selling, and administrative expenses—1,000 dollars—4/	58,812	72,465	96,684	32,954	35,934
Operating income or (loss)—do	(1,140)	62,118	113,844	61,041	(6,204)
Interest expense—do	1,334	1,665	3,058	1,343	1,393
Other income or (expense), net 1,000 dollars	597	56	1,041	765	(39)
Net income or (loss) before income taxes—1,000 dollars	(1,877)	60,509	111,827	60,463	(7,636)
Depreciation and amortization expense included above 5/ 1,000 dollars	18,645	19,604	22,024	9,436	16,215
Cashflow from operations 5/—do	16,768	80,113	133,851	69,899	8,579
As a share of cost of goods sold:					
Foreign product costs percent	42.2	40.7	33.7	32.6	29.0
Domestic product costs—do	57.8	59.3	66.3	67.4	71.0
As a share of net sales:					
Cost of goods sold—percent	72.4	56.0	52.6	48.7	76.8
Gross profit or (loss)—do	27.6	44.0	47.4	51.3	23.2
Research and development expenses—percent	4.5	3.3	2.7	2.1	4.8
General, selling, and administrative expenses—percent	23.6	21.9	20.5	17.2	22.3
Operating income or (loss) percent	(0.5)	18.8	24.2	31.9	(3.9)
Net income or (loss) before income taxes—percent	(0.8)	18.3	23.7	31.6	(4.7)
Number of firms reporting operating losses	5	5	2	4	7

1/ * * * discontinued wafer fabrication for the EPROM product line during January-March 1983.

2/ * * * did not provide a breakdown of its foreign and domestic product costs. The Commission staff estimated those costs based on the relationship of such costs to cost of goods sold computed from the remaining producers' data.

3/ * * * included * * * for new product development of 128K and 256K EPROM's in its cost of goods sold in the interim period of 1985.

4/ In 1982, * * * reported * * * of front-end startup costs with no sales.

5/ Depreciation and amortization expense was not provided by * * *. Hence, cashflow from operations is somewhat understated.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 16.—Gross profit-and-loss experience of 8 U.S. producers on their operations relating to the sale of EPROM's, the uncased EPROM of which was produced in their U.S. establishments, by specified densities, accounting years 1982-84, and interim periods ended June 30, 1984, and June 30, 1985

* * * * * * *

The industry reported an operating loss of $1.1 million, or 0.5 percent of net sales, in 1982. In 1982, * * * reported front-end startup costs of * * * with no sales, and * * * posted a large operating loss, * * * percent of net sales, though the company did not allocate any startup costs to EPROM operations. Aggregate operating income increased from $62.1 million, or 18.8 percent of net sales in 1983, to $113.8 million, or 24.2 percent of net sales in 1984. However, the industry experienced an operating loss of $6.2 million, or 3.9 percent of net sales during the interim period ended June 30, 1985, compared with a large operating income of $61.0 million, or 31.9 percent of net sales during the corresponding period of 1984. Five firms reported operating losses in 1982 and 1983, compared with * * * firms in 1984. During the 1985 interim period, seven of the eight reporting firms sustained operating losses.

Net income or loss before income taxes followed the trend for operating income or loss. Cashflow from operations increased from $16.8 million in 1982 to $133.9 million in 1984 and then dropped to $8.6 million during the interim period ended June 30, 1985, compared with $69.9 million during the corresponding period of 1984.

Fujitsu, which performs wafer fabrication in Japan and assembly in the United States, furnished income-and-loss data on its EPROM operations in the United States. These data are not included in the aggregate data presented in tables 15 and 16. Table 17 summarizes the key financial data for Fujitsu and presents aggregate data with Fujitsu's data included with the eight producers' data. The trends for net sales and all profit measures (gross profit, operating income, and pretax net income margins) for aggregate data including Fujitsu data are similar to those for the eight producers' aggregate data.

* * * provided the following data on its actual income-and-loss experience for July-September 1985 and its forecasted data for October-December 1985 on its EPROM operations:

* * * * * * *

Table 17.—Selected financial data of Fujitsu and aggregate data presented in table 15 plus Fujitsu on the operations relating to the sale of EPROM's, accounting years 1982-84, and interim periods ended June 30, 1984, and June 30, 1985

* * * * * * *

Overall establishment operations.—Overall establishment data on the eight firms performing wafer fabrication in the United States are presented in table 18. Establishment net sales doubled from $1.5 billion in 1982 to $3.1 billion in 1984 and then dropped by 19 percent to $1.1 billion during the interim period of 1985, compared with $1.4 billion during the corresponding period of 1984. The trends for overall establishment gross profit, operating income, and pretax net income, as a percent of net sales, are similar to those for EPROM operations during the period under investigation. The operating income margin increased from a negative 4.4 percent in 1982 to a positive 13.4 percent in 1984 and then dropped sharply to a negative 25.5 percent during the interim period of 1985, compared with a positive 15.6 percent during the corresponding period of 1984.

Capital expenditures and research and development expenses.—Nine firms provided information on their capital expenditures for land, buildings, and machinery and equipment used in the production of all products of their U.S. establishments, whereas, seven furnished such data relative to the production of EPROM's. Five of the nine firms supplied information on their research and development expenses. These data are presented in the following tabulation (in thousands of dollars):

* * * * * * *

Total capital expenditures for the EPROM product line jumped from * * * in 1982 to * * * in 1984, and further increased by * * * percent to * * * during January-June 1985, compared with capital expenditures of * * * during January-June 1984. Capital expenditures for all products showed a trend similar to that of the EPROM product line. Only one producer, * * *, reported pre-1982 research and development expenses, amounting to * * *. * * * did not incur any research and development expenses * * *. Research and development expenses increased from * * * in 1982 to * * * in 1984. Such expenses amounted to * * * and * * * during January-June 1984 and January-June 1985, respectively.

Impact of imports on U.S. producers' growth, investment, and ability to raise capital

The Commission asked U.S. producers to describe and explain the actual and potential negative effects, if any, of imports from Japan of EPROM's on their firm's growth, investment, and ability to raise capital. Their responses are presented in appendix D.

Table 18.—Income-and-loss experience of 8 U.S. producers on the overall operations of the establishments within which EPROM's are produced, accounting years 1982-84, and interim periods ended June 30, 1984, and June 30, 1985

Item	1982	1983	1984	Interim period ended June 30—	
				1984	1985
Net sales————million dollars—	1,535	2,092	3,076	1,361	1,108
Cost of goods sold————do——	1,089	1,322	1,765	764	950
Gross profit or (loss)———do——	446	770	1,311	597	158
General, selling, and administrative expenses——do——	514	628	898	385	441
Operating income or (loss)—do——	(68)	142	413	212	(283)
Interest expense————do——	32	36	40	18	20
Other income or (expense), net————do——	6	9	13	2	3
Net income or (loss) before income taxes————million dollars—	(94)	115	386	196	(300)
Depreciation and amortization expense included above 1/—do——	112	141	187	83	115
Cashflow from operations 1/ million dollars—	18	256	573	279	(185)
As a share of net sales:					
Cost of goods sold———percent—	70.9	63.2	57.4	56.1	85.7
Gross profit or (loss)——do——	29.1	36.8	42.6	43.9	14.3
General, selling, and administrative expenses————do——	33.5	30.0	29.2	28.3	39.8
Operating income or (loss) percent—	(4.4)	6.8	13.4	15.6	(25.5)
Net income or (loss) before income taxes————percent—	(6.1)	5.5	12.5	14.4	(27.1)
Number of firms reporting operating losses————————	6	4	2	4	7
Number of firms reporting net losses—————————————	6	5	2	4	7

1/ Depreciation and amortization expense was not provided by * * *. Hence, cashflow from operations is somewhat understated.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Consideration of Alleged Threat of Material Injury

Among the relevant economic factors that may contribute to the threat of material injury to the domestic industry are the ability of producers in Japan to increase the level of exports of EPROM's to the United States and the likelihood they will do so, any substantial increases in inventories of imports of Japanese EPROM's in the United States, and any rapid increase in penetration of the U.S. market by the imports.

The available data concerning the production and capacity of Japanese producers of EPROM's are presented in the section of this report entitled "The Industry in Japan." The available data concerning U.S. importers' inventories of EPROM's from Japan are presented in table 19.

There were * * * yearend inventories of uncased EPROM's in 1981. From 1982 to 1984, yearend inventories fell steadily, by * * * percent from 1982 to 1983 and by * * * percent from 1983 to 1984. Inventories of cased EPROM's increased from * * * units as of December 31, 1981, to * * * units as of December 31, 1984. In 1981 and 1982, yearend inventories of imports of cased EPROM's with densities of 64K and under 64K accounted for * * * percent of yearend inventories, but as of yearend 1984, imports of cased 64K and 128K EPROM's accounted for * * * percent of yearend inventories. As of June 30, 1985, inventories of cased 64K and 128K EPROM's accounted for * * * percent of the * * * units.

A discussion on the level of shipments of cased EPROM's imported from Japan and their market share is presented in the following section of this report.

Consideration of the Causal Relationship Between Imports Allegedly Sold at LTFV and the Alleged Material Injury or Threat Thereof

U.S. imports from Japan

Data on U.S. imports from Japan were compiled from responses to the Commission's questionnaires. Table 20 presents U.S. shipments of uncased EPROM's imported from Japan. In 1982, shipments of imports of uncased EPROM's with densities under 64K accounted for * * * percent of total U.S. shipments of imports of uncased EPROM's from Japan, and shipments of imports of uncased 64K EPROM's represented * * * percent of the total. There were * * * shipments of uncased EPROM's with densities under 64K imported from Japan in 1983, 1984, or during January-June 1985. Shipments of imports of uncased 64K EPROM's increased * * * from 1982 to 1984. During January-June 1985, shipments of these imports continued to rise, by * * * percent, compared with shipments during the corresponding period of 1984. Whereas, there were * * * shipments of imports of uncased 128K EPROM's in 1982, shipments of these imports * * * from 1983 to 1984. Shipments of uncased 128K EPROM's imported from Japan continued to increase, rising by * * * percent during January-June 1985, compared with shipments of these imports during the corresponding period of 1984.

Table 19.—EPROM's, uncased and cased: U.S. importers' inventories of EPROM's produced in Japan, by densities, as of Dec. 31 of 1981-84, June 30, 1984, and June 30, 1985

* * * * * * *

Table 20.—EPROM's, uncased: U.S. shipments of imports from Japan, by densities, 1982-84, January-June 1984, and January-June 1985

* * * * * * *

Table 21 presents U.S. shipments of cased EPROM's imported from Japan. 1/ Shipments of imports of cased EPROM's from Japan followed an upward trend from 1982 to 1984, rising by 86 percent from 1982 to 1983 and by 11 percent from 1983 to 1984. Shipments of cased EPROM's with densities under 64K rose by * * * percent from 1982 to 1983, but fell by * * * percent from 1983 to 1984. The 1984 level of shipments of imports from Japan of cased EPROM's with densities under 64K was * * * percent lower than the level of these shipments in 1982. During January-June 1985, the level of these shipments was * * * percent below the level during the corresponding period of 1984. Shipments of imports from Japan of cased 64K EPROM's increased from * * * units in 1982 to * * * units in 1984. Shipments of cased 64K EPROM's rose slightly during January-June 1985, compared with these shipments during January-June 1984. There were * * * shipments of cased 128K EPROM's imported from Japan in 1982, but those shipments increased from * * * units in 1983 to * * * in 1984, and continued to rise * * * during January-June 1985, compared with shipments during the corresponding period of 1984. There were * * * shipments of imports from Japan of cased 256K EPROM's in 1982 or 1983 and shipments of * * * units in 1984. During January-June 1985, there were * * * cased 256K EPROM's imported from Japan that were shipped in the United States.

1/ Does not include small quantities of cased EPROM's with densities under 64K and of 64K made from uncased EPROM's produced in Japan and assembled in third countries, or small quantities of cased EPROM's with densities under 64K made from uncased EPROM's produced and assembled in Japan.

Table 21.—EPROM's, cased: U.S. shipments 1/ of imports from Japan, 2/ by densities, 1982-84, January-June 1984, and January-June 1985

(In thousands of units)

Item	1982	1983	1984	January-June— 1984	January-June— 1985
Under 64K	3/ ***	3/ ***	***	***	***
64K 3/	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Total	5,680	10,575	11,708	5,428	5,050

1/ Includes intracompany and intercompany transfers.

2/ Does not include cased EPROM's made from uncased EPROM's produced in Japan and assembled in third countries.

3/ Does not include small quantities of cased EPROM's made from uncased EPROM's produced and assembled in Japan.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

U.S. market shares of shipments

Table 22 presents the market shares of shipments of cased EPROM's on the basis of the country of origin of the uncased EPROM used to make the product and the country in which the EPROM is assembled. As shown, cased EPROM's made from uncased EPROM's produced in the United States and assembled offshore, and cased EPROM's made from uncased EPROM's produced and assembled in Japan account for over 90 percent of U.S. consumption of cased EPROM's. The share of consumption accounted for by shipments of cased EPROM's imported directly from Japan increased from 15.5 percent in 1982 to 18.5 percent in 1983, but declined to 17.3 percent in 1984. The share held by shipments of these cased EPROM's made from uncased EPROM's produced and assembled in Japan fell to 14.9 percent during January-June 1985, compared with the ratio of 15.4 percent during January-June 1984. The ratio of shipments of cased EPROM's imported directly from Japan with densities under 64K to consumption fell from * * * percent in 1982 to * * * percent in 1984, and dropped to * * * percent during January-June 1985, compared with the ratio of * * * percent during January-June 1984. The ratio of shipments of direct imports from Japan of cased 64K EPROM's rose significantly, from * * * percent in 1982 to * * * percent in 1984. These shipments as a share of total consumption increased to * * * percent during January-June 1985, compared with a * * * percent share during January-June 1984. Similarly the ratio of shipments of cased 128K EPROM's imported from Japan to U.S. consumption rose from * * * percent in 1983 to * * * percent in 1984 and * * * during January-June 1985, compared with the ratio during January-June 1984. Shipments of imports of cased 256K EPROM's imported from Japan, which accounted for * * * percent of U.S. consumption in 1984, represented * * * percent of consumption during January-June 1985.

Table 22.—EPROM's, cased: U.S. market shares of shipments, 1/ by densities, 1982-84, January-June 1984, and January-June 1985

(In percent)

Item	1982	1983	1984	January-June—	
				1984	1985
Made from U.S.-produced uncased EPROM's and assembled in the United States:					
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Average	***	***	***	***	***
Made from U.S.-produced uncased EPROM's and assembled in third countries:					
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Average	80.6	75.1	75.1	75.4	79.2
Made from uncased EPROM's produced in Japan and assembled in the United States:					
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Average	***	***	***	***	***
Made from uncased EPROM's produced and assembled in Japan:					
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Average	15.5	18.5	17.3	15.4	14.9
Made from uncased EPROM's produced and assembled in third countries:					
Under 64K	***	***	***	***	***
64K	***	***	***	***	***
128K	***	***	***	***	***
256K	***	***	***	***	***
Over 256K	***	***	***	***	***
Average	***	***	***	***	***

1/ Includes intracompany and intercompany transfers.

2/ Less than 0.05.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Since uncased EPROM's are imported from Japan for assembly in the United States, shipments of cased EPROM's produced from imports from Japan of uncased EPROM's serve to measure the actual impact of imports from Japan of uncased EPROM's. As shown in table 22, shipments of these cased EPROM's, as a share of U.S. consumption, increased from * * * percent in 1982 to * * * percent in 1984. During January-June 1985, the ratio of these shipments to U.S. consumption fell to * * * percent, compared with the ratio of * * * percent during the corresponding period of 1984.

Prices

Demand for EPROM's is a derived demand dependent on the demand for end products that incorporate such memory devices in their design and function. These end products include, by category: (1) mini, micro, and mainframe computers; (2) electronic business and office equipment; (3) industrial process-control equipment, including scientific instruments; (4) telecommunications equipment; and (5) consumer electronic products, including personal computers.

In the past decade, demand for computer and electronic products has exhibited sharp growth punctuated by pauses that mirror the vulnerability of those industries to the business cycle as it reflects the ups and down of business and industrial investment and the pattern of consumer confidence. 1/

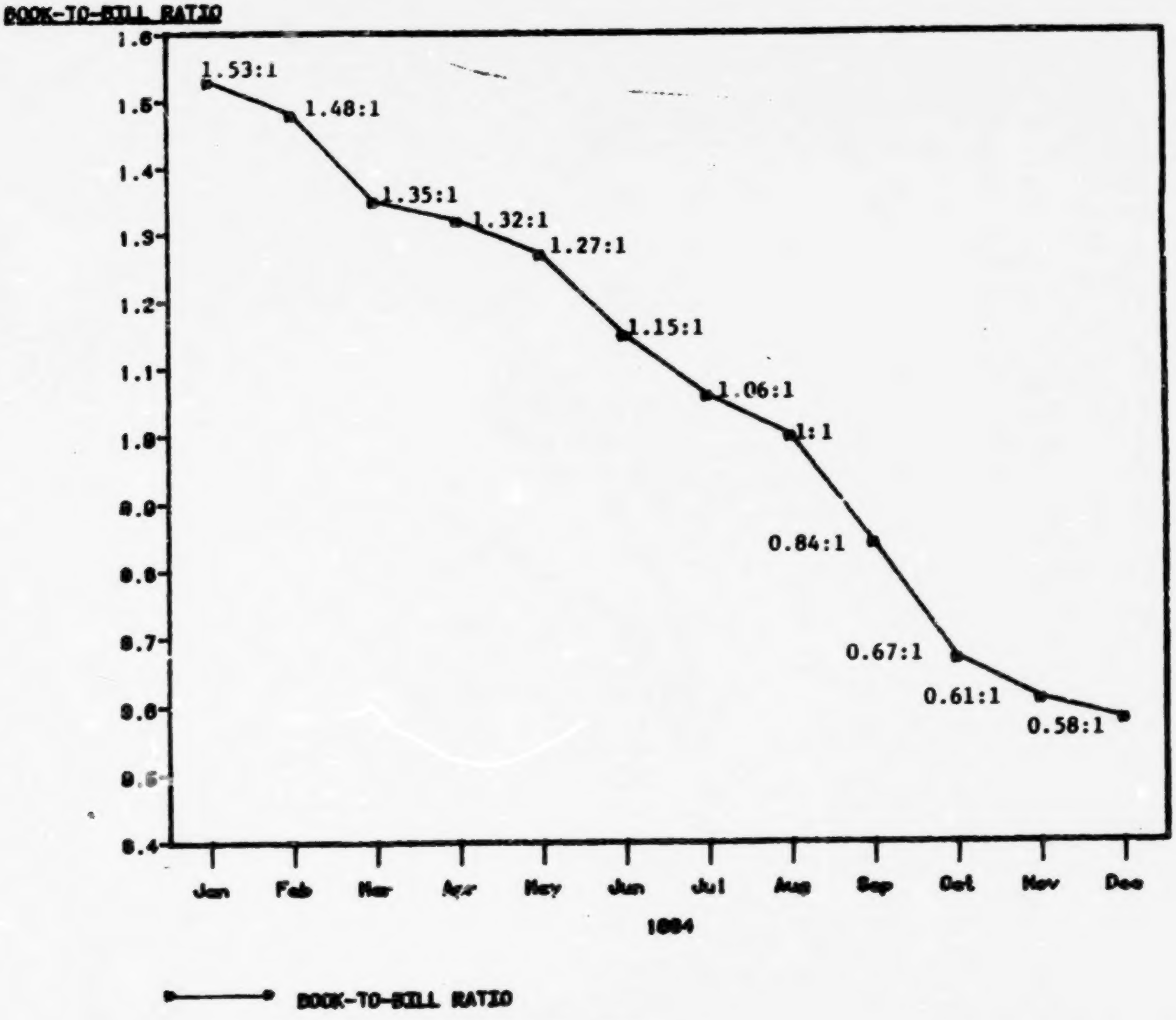
During 1983 and 1984, the driving force in creating demand for EPROM's was the growth in the overall level of economic activity, but particularly the strong surge in demand for personal computers. As demand increased, the book-to-bill ratio for the semiconductor industry climbed and was at a level of over 1.5 to 1 in January 1984 (figure 1). This period of strong demand was characterized by firm and rising prices (in some market segments, premium prices), long-term contracts to ensure supply, double ordering to guarantee adequate supply, allocations from domestic and import suppliers, and investments by producers to expand capacity. As the economy began to slow in 1984, the book-to-bill ratio declined and prices softened. By December, the ratio had fallen to 0.6 to 1 and price competition had sharpened. This period was characterized by a sharp downturn in demand for OEM products that use EPROM's, heavy inventory buildups that increased "grey market" activity in offers of low prices, downward price adjustments to long-term contracts, push backs in scheduled delivery dates, and large cancellations of scheduled deliveries. 2/ By yearend 1984, it was increasingly clear that demand for personal computers had fallen far short of forecasts and expectations, resulting in heavy inventories in producers' warehouses. 3/

1/ San Jose Mercury News, "Chips the Struggle to Survive," section D, June 10, 1985.

2/ Electronic News, Jan. 14, 1985, p. 1; Feb. 11, 1985, p. 19; and March 4, 1985, p. 1.

3/ See, for example, Fortune, Aug. 5, 1985, "Behind the Fall of Steve Jobs," pp. 21-29.

Figure--The book-to-bill ratio of the semiconductor industry, by months, January-December 1984.



As noted in the "Channels of Distribution" section of this report, EPROM's are sold through three channels of distribution: (1) on a long-term contract basis to OEM's and on a shorter-term scheduled delivery basis to board stuffers, (2) to authorized distributors, and (3) to spot-market purchasers. These three channels reflect different pricing policies and different sized purchases and purchasers. 1/ In order to compare domestic and import price trends and measure margins of underselling (or overselling) by imports from Japan, the Commission asked domestic producers and importers to supply data on price quotations made to OEM's to supply EPROM's for the three largest quantity contracts awarded, at least in part, to their respective firms during October-December 1983 or January-May 1984 for scheduled delivery from June 1, 1984, through May 31, 1985. Separate price-quote data were requested for three EPROM densities, 64K, 128K, and 256K, and for four different OEM categories of end-use products: (1) office automation equipment, (2) telecommunications equipment, (3) industrial automation equipment, and (4) consumer electronic products. 2/ To capture the pattern of renegotiated domestic and import prices, monthly data were requested on lowest invoice prices in servicing these contract awards during June 1984-October 1985. 3/

Further, the Commission asked domestic producers and importers for the net selling prices of factory direct sales to board stuffers, authorized distributors, and spot-market purchasers. These transaction prices were requested to be the lowest net selling price to each class of customer during June 1984-October 1985. 4/

Trends in prices.—As mentioned, the Commission asked domestic producers and importers for prices of 64K, 128K, and 256K NMOS EPROM's (250ns). Weighted averages of the prices received are the basis for the trend analysis that follows. Domestic producers' selling prices are f.o.b. plant, net of all discounts and allowances. Importers' selling prices are duty-paid prices, ex-dock, port of entry (or importer warehouse), net of all discounts and allowances, and excluding U.S. inland freight.

Prices of 64K EPROM's sold to office automation OEM's.—The general price trend in factory direct sales to this class of OEM was irregularly down in 1984, declining by 25 percent from an award price of * * * to a low of * * * in October; the price level then recovered in November and December to a level 8 percent below the base-period price (table 23). A sharp downtrend began in early 1985, and by September, prices had reached a low of * * *, 65 percent below the award price level. The price level of Japanese 64K EPROM's, about 25 percent below that of the domestic product, reflected a slight uptrend in 1984 that fell to the base-period level during January-February 1985. No Japanese price data were provided for the balance of 1985.

1/ Long-term contracts generally are subject to price renegotiations at the purchaser's option. Distributor prices are adjusted on a "meet-competition" basis to enable sales of in-stock products at competitive prices without a distributor selling below cost and absorbing a loss.

2/ Includes personal computers.

3/ Most such contracts, it is understood, were extended and renegotiated to cover the balance of 1985 and to extend into 1986.

4/ Monthly data from June 1984-October 1985 were requested in order to track the sharp downturn in prices that began during that time period.

Table 23.--64K EPROM's (250 ns): Contract award prices 1/ and weighted-average net selling prices for sales of domestic products and for sales of imports from Japan to 4 classes of OEM customers, and indexes of those prices, 2/ by classes and by months, October-December 1983 and June 1984-October 1985

(Per unit)

Period	Prices, by class of OEM customer															
	Office automation OEM				Telecommunication OEM				Industrial automation OEM				Consumer products OEM			
	U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price	
	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
1983:																
Oct-Dec-----	100	***	-	-	100	***	-	-	-	-	100	***	-	-	-	-
1984:																
June--------	84	***	100	***	[illegible]	***	100	***	100	***	112	***	100	***	100	***
July--------	84	***	100	***	101	***	101	***	85	***	100	***	101	***	100	***
August------	78	***	102	***	87	***	103	***	87	***	112	***	114	***	100	***
September---	80	***	100	***	83	***	102	***	85	***	-	-	123	***	100	***
October-----	75	***	103	***	84	***	98	***	85	***	100	***	121	***	89	***
November----	80	***	106	***	81	***	98	***	94	***	-	-	124	***	89	***
December----	92	***	106	***	76	***	93	***	90	***	-	-	120	***	-	-
1985:																
January-----	76	***	101	***	72	***	93	***	85	***	100	***	98	***	-	-
February----	46	***	99	***	66	***	86	***	83	***	-	-	98	***	-	-
March-------	74	***	-	-	56	***	93	***	83	***	-	-	90	***	-	-
April-------	67	***	-	-	59	***	-	-	82	***	-	-	46	***	-	-
May---------	74	***	-	-	62	***	63	***	82	***	-	-	43	***	-	-
June--------	67	***	-	-	67	***	-	-	73	***	-	-	98	***	-	-
July--------	39	***	-	-	64	***	-	-	57	***	-	-	63	***	-	-
August------	52	***	-	-	63	***	42	***	63	***	-	-	98	***	-	-
September---	35	***	-	-	48	***	42	***	55	***	-	-	82	***	-	-
October-----	-	-	-	-	54	***	-	-	63	***	-	-	-	-	-	-

1/ Contract award price for scheduled delivery of 64K EPROM's in subsequent months.
2/ First period with data=100.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Prices of 64K EPROM's sold to telecommunication OEM's.—Domestic sales to this class of OEM showed a steadily downward price trend in 1984 and 1985. Prices fell by 24 percent from an award level of * * * to * * * per unit in December 1984, then fell to a period low of * * * in September 1985, for a decline of 52 percent from the base-period price level. Imported Japanese EPROM's, which were again priced below the domestic EPROM's, showed a rather level trend in 1984, then a steep decline from an initial 1985 price level of * * * to * * * per unit in September, a price level 58 percent below the June 1984 base-period price of * * *.

Prices of 64K EPROM's sold to industrial automation OEM's.—Factory direct sales to this class of OEM reflect a similar but more moderate downward trend in 1984 to a level of * * * in December, 10 percent below the June base-period price of * * *. Prices held firm during January-May 1985 at near the * * * level, then decreased to a low of * * * in September, 45 percent lower than the base-period price. Partial price data for Japanese 64K EPROM's sold to this class of OEM during June 1984-January 1985 showed an irregular up and down price trend between * * * and * * * per unit.

Prices of 64K EPROM's sold to consumer products OEM's.—The price trend in domestic sales to this class of OEM showed an upward trend of 24 percent in 1984 from a June base-period price of * * * to * * * in November. Prices then fell sharply to a low of * * * in May 1985. An erratic trend followed during June-September 1985, with price levels fluctuating from * * * to a * * * low in July, then back to * * * in September, 18 percent below the base-period level. Price data for sales of Japanese 64K EPROM's cover June-November 1984 and showed a decline of 11 percent.

Prices of 128K EPROM's sold to office automation OEM's.—The general price trend in factory direct sales to this class of OEM was sharply downward (40 percent) during June-September 1984 to a price level of * * * from the award price level of * * * (table 24). Prices turned up erratically during October-December 1984, then fell sharply in 1985 to a period low of * * * in September, 73 percent below the base-period price. No data on Japanese prices were received.

Prices of 128K EPROM's sold to telecommunication OEM's.—Price data for factory direct sales to this class of OEM showed a similar, sharp downward trend in 1984 to a low of * * * in October, 45 percent below the contract-award price of * * *. Again, the price level recovered somewhat during November and December, then prices decreased steadily to a period low of * * * in September 1985, 85 percent below the beginning contract level. Japanese prices showed the same trend, falling by 85 percent from a June level of * * * to * * * in August 1985.

Prices of 128K EPROM's sold to industrial automation OEM's.—The general price trend of domestic sales to this class of OEM showed the same steep downward trend but did not show a strengthened price level during October-December 1984. Prices fell by 54 percent from a contract award level of * * * to * * * in December 1984, then continued to decline to a period low of * * *, 70 percent below the base-period price, in October 1985. Japanese prices showed a flat trend in 1984 at * * * per unit, then a sharp 40-percent drop to * * * in January 1985.

Table 24.--128K EPROM's (250 ns): Contract award prices 1/ and weighted-average net selling prices for sales of domestic products and for sales of imports from Japan to 4 classes of OEM customers, and indexes of those prices, 2/ by classes and by months, October-December 1983 and June 1984-October 1985

(Per unit)

Period	Prices, by class of OEM customer															
	Office automation OEM				Telecommunication OEM				Industrial automation OEM				Consumer products OEM			
	U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price	
	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
1983:																
Oct-Dec	100	***	-	-	100	***	-	-	100	***	-	-	100	***	-	-
1984:																
June	95	***	-	-	89	***	100	***	56	***	100	***	100	***	-	-
July	62	***	-	-	66	***	100	***	58	***	100	***	100	***	-	-
August	63	***	-	-	96	***	100	***	62	***	100	***	100	***	-	-
September	60	***	-	-	79	***	-	-	53	***	100	***	100	***	-	-
October	69	***	-	-	55	***	-	-	53	***	100	***	100	***	-	-
November	91	***	-	-	84	***	-	-	52	***	100	***	100	***	-	-
December	74	***	-	-	88	***	-	-	46	***	100	***	100	***	-	-
1985:																
January	65	***	-	-	63	***	56	***	45	***	60	***	79	***	-	-
February	68	***	-	-	51	***	-	-	40	***	60	***	79	***	-	-
March	68	***	-	-	48	***	33	***	40	***	60	***	59	***	-	-
April	39	***	-	-	36	***	28	***	39	***	-	-	-	-	-	-
May	42	***	-	-	38	***	28	***	39	***	-	-	59	***	-	-
June	32	***	-	-	21	***	28	***	32	***	-	-	59	***	-	-
July	35	***	-	-	38	***	19	***	30	***	-	-	-	-	-	-
August	31	***	-	-	21	***	15	***	31	***	-	-	-	-	-	-
September	27	***	-	-	15	***	-	-	29	***	-	-	59	***	-	-
October	-	-	-	-	-	-	-	-	30	***	-	-	-	-	-	-

1/ Contract award price for scheduled delivery of 128K EPROM's in subsequent months.
2/ First period with data=100.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Prices of 128K EPROM's sold to consumer products OEM's.—Factory direct sales to this class of OEM reflected a somewhat different trend. Prices held at * * * during 1984, then declined less sharply in 1985 to a level of * * * during March-September, a price level 41 percent below the contract award price. No Japanese prices were received for sales to consumer product OEM's.

Prices of 256K EPROM's sold to office automation OEM's.—Factory direct sales to this class of OEM reflected a price downtrend of 25 percent through November 1984 to * * *, an upturn to * * * in January 1985 (6 percent above the base-period price of * * *), then a sharp decline to * * * in September, a price 78 percent below the June 1984 price level (table 25). No Japanese prices for 256K EPROM's were submitted.

Prices of 256K EPROM's sold to telecommunication OEM's.—Domestic prices to this class of OEM showed an uptrend in 1984 through October, then a precipitous decline from a period high of * * * to a period low of * * * in September 1985, a price 90 percent below the June 1984 base-period price of * * *. No Japanese prices were submitted.

Prices of 256K EPROM's sold to industrial automation OEM's.—Prices for domestic sales to this class of OEM were steady at * * * per unit during June-September 1984, declined by 32 percent to * * * in December of that year, and continued this decline in 1985 to end the subject period at a price of * * *, 82 percent below the base-period price level. No Japanese prices were submitted.

Prices 256K EPROM's sold to consumer products OEM's.—The price trend of domestic sales to this class of OEM showed the sharpest decline from the contract award level. Prices fell by 73 percent from the award price of * * * to * * * in December 1984. The downward trend continued irregularly in 1985 to a period low of * * * in July 1985, after which prices show a slight upward trend to end the subject period at * * *, 85 percent below the award price level. No Japanese price data were received.

Prices to purchasers in other channels of distribution.—The Commission also asked domestic producers and importers for the lowest monthly net prices of the subject EPROM's sold to circuit board stuffers, distributors, and spot-market customers during June 1984-October 1985. These data are presented in appendix E, tables E-1 through E-12. The trend in prices to these classes of customers generally exhibited the same sharp downward trend as analyzed above in sales of all three EPROM devices—64K, 128K, and 256K. The pattern, with some exceptions, was generally the same for all three classes of purchasers.

Prices of 64K EPROM's.—Although domestic prices of this type semiconductor to the three classes of purchasers showed a downward trend, the decline was not as steep or as early in the subject period as in sales to OEM's (appendix E, tables E-1 through E-4). Prices to distributors generally reflected the lowest absolute levels and the sharpest declines of the three channels of distribution. Prices of Japanese 64K EPROM's showed a similar trend and the Japanese presence was strongest in the distributor channel in all four quantity levels surveyed.

Table 25.--256K EPROM's (250 ns): Contract award prices 1/ and weighted-average net selling prices for sales of domestic products and for sales of imports from Japan to 4 classes of OEM customers, and indexes of those prices, 2/ by classes and by months, October-December 1983 and June 1984-October 1985

(Per unit)

Period	Prices, by class of OEM customer															
	Office automation OEM				Telecommunication OEM				Industrial automation OEM				Consumer products OEM			
	U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price		U.S. weighted-average price		Japanese weighted-average price	
	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
1983:																
Oct-Dec.---													100	***		
1984:																
June--------	100	***	-	-	100	***	-	-	100	***	-	-	43	***	-	-
July--------	97	***	-	-	-	-	-	-	100	***	-	-	46	***	-	-
August------	80	***	-	-	-	-	-	-	100	***	-	-	46	***	-	-
September--	78	***	-	-	119	***	-	-	100	***	-	-	35	***	-	-
October-----	75	***	-	-	119	***	-	-	89	***	-	-	29	***	-	-
November----	75	***	-	-	49	***	-	-	89	***	-	-	28	***	-	-
December---	103	***	-	-	33	***	-	-	68	***	-	-	27	***	-	-
1985:																
January-----	106	***	-	-	37	***	-	-	53	***	-	-	46	***	-	-
February----	34	***	-	-	37	***	-	-	53	***	-	-	19	***	-	-
March-------	42	***	-	-	24	***	-	-	53	***	-	-	23	***	-	-
April-------	48	***	-	-	37	***	-	-	39	***	-	-	18	***	-	-
May---------	45	***	-	-	11	***	-	-	48	***	-	-	13	***	-	-
June--------	30	***	-	-	11	***	-	-	49	***	-	-	9	***	-	-
July--------	30	***	-	-	11	***	-	-	20	***	-	-	9	***	-	-
August------	29	***	-	-	10	***	-	-	19	***	-	-	12	***	-	-
September--	22	***	-	-	10	***	-	-	18	***	-	-	10	***	-	-
October-----	-	-	-	-	11	***	-	-	-	-	-	-	15	***	-	-

1/ Contract award price for scheduled delivery of 256K EPROM's in subsequent months.
2/ First period with data=100.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Prices of 128K EPROM's.—The domestic price trend in sales of this EPROM density to the three subject purchaser groups generally followed the same pattern as that of sales to OEM's. The domestic price levels fell to lows that range from 65 to 92 percent below the base-period price levels (appendix E, tables E-5 through E-8). Japanese 128K EPROM prices to purchasers in these three channels of distribution also showed a sharp decline that generally matched the domestic trend. The Japanese presence in these markets was strongest in sales of 5,000 units or less.

Prices of 256K EPROM's.—The trend in domestic prices for sales in these three channels of distribution showed a steady decline that began in 1984 and continued through 1985 to lows that were only 4 to 8 percent of the base-period price levels (appendix E, tables E-9 through E-12). Prices of Japanese 256K EPROM's for sales to these three types of purchasers appeared only early in 1985 and reflected a downward trend during the balance of the subject period. Again, the Japanese presence was strongest in the distributor channel of distribution.

Margins of underselling

Monthly comparisons of the weighted-average net selling prices reported for sales of EPROM's to each of the four classes of OEM's, to circuit board stuffers, to distributors, and to spot-market customers 1/ provided the basis for the analysis of margins of underselling (or overselling). Although there were instances of overselling as well as underselling by imported EPROM's from Japan, the general pattern was one of underselling.

64K EPROM's sold to office automation OEM's.—Monthly comparisons of prices for these EPROM's sold to this class of OEM showed that the imported Japanese product undersold the domestic product in 8 of 9 instances by margins that ranged from 27.4 to 39.5 percent or from * * * to * * * per unit (table 26). The single instance of overselling showed a margin of 12.5 percent, or * * *, in favor of the domestic EPROM's.

64K EPROM's sold to telecommunications OEM's.—Imported EPROM's from Japan undersold the domestic product in 12 of 13 monthly comparisons of weighted-average net selling prices to this class of purchasers. Margins of underselling ranged from 10.6 to 54.7 percent, or from * * * to * * * (table 26). A single instance of overselling by the imported EPROM's showed a margin of 11.6 percent, or * * *, in favor of the domestic product.

64K EPROM's sold to industrial automation OEM's.—Monthly comparisons of weighted-average net selling prices to this class of OEM were possible in five instances. Imported EPROM's from Japan undersold the domestic product in each instance. Margins of underselling ranged from 6.4 to 18.7 percent, or from * * * to * * * per unit (table 27).

1/ That is, the price data presented in tables 23, 24, 25, and E-1 through E-12.

Table 26.—64K EPROM's (250 ns) sold factory direct to office automation and telecommunication OEM's: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by months, June 1984–October 1985

(Per unit)

Period	Margins on sales to—			
	Office automation OEM's		Telecommunication OEM's	
	Amount	Percent	Amount	Percent
1984:				
June	***	37.58	***	19.33
July	***	36.57	***	31.81
August	***	30.56	***	19.84
September	***	34.17	***	16.48
October	***	27.42	***	21.04
November	***	29.95	***	17.84
December	***	39.50	***	17.60
1985:				
January	***	30.18	***	12.81
February	***	-12.49	***	10.63
March	—	—	***	-11.55
April	—	—	—	—
May	—	—	***	30.46
June	—	—	—	—
July	—	—	—	—
August	—	—	***	54.68
September	—	—	***	38.95
October	—	—	—	—

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 27.—64K EPROM's (250 ns) sold factory direct to industrial automation and consumer product OEM's: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by months, June 1984–October 1985

(Per unit)

Period	Margins on sales to—			
	Industrial automation OEM's		Consumer product OEM's	
	Amount	Percent	Amount	Percent
1984:				
June	***	18.67	***	1.81
July	***	14.89	***	2.81
August	***	6.38	***	13.71
September	–	–	***	20.26
October	***	14.89	***	27.88
November	–	–	***	29.27
December	–	–	–	–
1985:				
January	***	14.89	–	–
February	–	–	–	–
March	–	–	–	–
April	–	–	–	–
May	–	–	–	–
June	–	–	–	–
July	–	–	–	–
August	–	–	–	–
September	–	–	–	–
October	–	–	–	–

1/ Overselling is shown with a negative (–) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

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64K EPROM's sold to consumer products OEM's.—Six monthly comparisons of weighted-average net selling prices of these EPROM's all showed underselling by imported Japanese EPROM's. The margins of underselling ranged from 1.8 to 29.3 percent, or from * * * to * * * per unit (table 27).

128K EPROM's sold to telecommunication OEM's.—Ten monthly comparisons of weighted-average net selling prices were possible for sales of these EPROM's. Underselling by the imported Japanese product appeared in 8 of the 10 comparisons. Margins of underselling by imports ranged from 0.4 to 55.1 percent, or from * * * to * * * per unit (table 28). Imports sold at prices above the domestic EPROM's in two instances, by margins of 21.5 and 34.0 percent, or by * * * and * * * per unit.

128K EPROM's sold to industrial automation OEM's.—In a reversal of the general price pattern of sales to OEM's, imports from Japan sold to this class of OEM oversold domestic EPROM's in 9 of 10 monthly comparisons. Margins of overselling ranged from 3.1 to 50.0 percent, or * * * to * * * per unit (table 28). The single instance of underselling showed an 8.4 percent, or * * *, price advantage for the Japanese product.

64K EPROM's sold direct to circuit board stuffers.—Fourteen comparisons of monthly weighted-average net selling prices of sales in this channel of distribution were possible, nine of which were for sales of 1,000 to 5,000 units. Margins of underselling by imported Japanese EPROM's appeared in 10 of the 14 comparisons. These margins ranged from 5.6 to 49.1 percent, or from $0.25 to $1.35 per unit (table 29). Margins of overselling ranged from 3.7 to 103.6 percent, or from $0.15 to $2.16 per unit.

64K EPROM's sold to distributors.—For sales of 1,000 units or less, price data enabled 16 comparisons of weighted-average net selling prices. Margins of underselling by Japanese EPROM's are shown in 13 of these comparisons. These margins ranged from 0.1 to 27.5 percent, or from $0.01 to $1.35 per unit (table 30). There were two instances in which Japanese imports were priced above the domestic product at margins of 53.1 and 117.5 percent, or $0.59 and $1.15 per unit. These examples of overselling occurred in August and September 1985. Data on sales of 1,000 to 5,000 units reveal 17 monthly comparisons of weighted-average net selling prices to distributors. Ten show underselling by imported EPROM's from Japan and seven reflect overselling. Four of the seven overselling examples occurred late in the subject period. Margins of underselling ranged from 1.7 to 34.6 percent, or from $0.03 to $1.96 per unit. Margins of overselling ranged from 3.0 to 108.3 percent, or from $0.13 to $1.04 per unit. Sales of 5,000 to 10,000 units reveal four instances of overselling and three of underselling by the imported Japanese EPROM's. Margins of overselling ranged from 2.6 to 49.7 percent, or from $0.13 to $0.66 per unit. Underselling margins ranged from 31 to 54.9 percent, or from $0.90 to $1.95 per unit. Comparisons of price data for sales to distributors in quantities over 10,000 units show three examples in which the Japanese EPROM's undersold the domestic product. The margins of underselling ranged from 22.2 to 42.0 percent, or from $1.00 to $1.45 per unit.

Table 28.—128K EPROM's (250 ns) sold factory direct to telecommunication and industrial automation OEM's: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by months, June 1984–October 1985

(Per unit)

Period	Margins on sales to—			
	Telecommunication OEM's		Industrial automation OEM's	
	Amount	Percent	Amount	Percent
1984:				
June	***	0.35	***	-22.22
July	***	-33.99	***	-19.60
August	***	7.56	***	-11.65
September	-	-	***	-29.88
October	-	-	***	-30.81
November	-	-	***	-33.33
December	-	-	***	-50.00
1985:				
January	***	21.16	***	8.36
February	-	-	***	-3.06
March	***	38.94	***	-4.39
April	***	30.47	-	-
May	***	34.21	-	-
June	***	-21.52	-	-
July	***	55.08	-	-
August	***	36.78	-	-
September	-	-	-	-
October	-	-	-	-

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 29.—64K EPROM's (250 ns) sold factory direct to circuit board stuffers: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984-October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	–	–	–	–	–	–	–	–
July	–	–	–	–	–	–	–	–
August	–	–	–	–	–	–	–	–
September	$-0.15	-3.7	–	–	$1.25	22.7	–	–
October	–	–	–	–	.55	11.5	–	–
November	2.25	39.1	–	–	–	–	–	–
December	–	–	$0.25	5.6	–	–	–	–
1985:								
January	–	–	.25	5.6	–	–	–	–
February	–	–	–	–	–	–	–	–
March	–	–	1.55	26.7	–	–	–	–
April	–	–	.80	28.6	–	–	–	–
May	–	–	1.35	49.1	–	–	–	–
June	–	–	1.25	39.7	–	–	–	–
July	-2.16	-103.6	1.45	43.3	–	–	–	–
August	–	–	-.90	-90.0	–	–	–	–
September	–	–	-.71	-47.7	–	–	–	–
October	–	–	–	–	–	–	–	–

1/ Overselling is shown with a negative (–) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 30.—64K EPROM's (250 ns) sold factory direct to authorized distributors: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984–October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	$0.65	14.4	$-0.20	-4.9	–	–	–	–
July	1.35	27.5	1.96	34.6	–	–	–	–
August	.44	9.6	.26	5.3	$2.52	38.7	–	–
September	.89	18.3	.78	15.8	-0.13	-2.6	$2.55	38.9
October	.01	0.1	-.13	-3.0	–	–	–	–
November	.88	18.3	.64	15.2	–	–	1.00	22.2
December	1.04	25.3	.76	20.2	–	–	–	–
1985:								
January	1.06	27.2	-.72	-37.2	–	–	–	–
February	.21	8.7	.40	17.0	-.11	-3.2	–	–
March	.27	12.7	.48	19.9	.90	31.0	–	–
April	.24	12.7	.38	19.2	1.95	54.9	–	–
May	.34	19.0	.03	1.7	-.27	-15.8	–	–
June	.39	20.7	.24	13.4	-.66	-49.7	1.45	42.0
July	-.00	-.0	-.69	67.0	–	–	–	–
August	-.59	-53.1	-.42	-39.3	–	–	–	–
September	-1.15	-117.5	-1.04	-108.3	–	–	–	–
October	–	–	-.44	-45.8	–	–	–	–

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Spot-market sales of 64K EPROM's.—Twelve comparisons of monthly weighted-average net selling prices were possible for spot-market sales in quantities of 1,000 units or less. Imported EPROM's from Japan undersold the domestic product in 7 of these 12 instances. Margins of underselling ranged from 8.5 to 69.2 percent, or from $0.35 to $4.32 per unit (table 31). Overselling margins by the Japanese EPROM's ranged from 5.6 to 14.1 percent, or from $0.10 to $0.58 per unit. Spot-market sales in quantities of 1,000 to 5,000 units enabled 12 price comparisons. Margins of underselling by the imported Japanese EPROM's appeared in 7 of the 12 comparisons. These margins ranged from 2.9 to 42.0 percent, or from $0.13 to $1.37 per unit. Margins of overselling were found in 5 instances, ranging from 0.5 to 16.8 percent, or from $0.01 to $0.69 per unit.

128K EPROM's sold direct to circuit board stuffers.—Price data enabled 17 weighted-average net selling price comparisons for sales to board stuffers of 128K EPROM's in quantities of 10,000 units or less. In 10 of these comparisons, imported EPROM's from Japan undersold the domestic product. The margins of underselling ranged from 6.8 to 70.7 percent, or from $0.75 to $5.30 per unit (table 32). Five comparisons show overselling by the imported EPROM's. Margins of overselling ranged from 2.5 to 106.9 percent, or from $0.25 to $1.55 per unit.

128K EPROM's sold to distributors.—Thirty-two comparisons of weighted-average net selling prices were possible for sales of 5,000 units or less to distributors. Fifteen comparisons showed Japanese EPROM's underselling the domestic product by margins that ranged from 0.6 to 50.4 percent, or from $0.06 to $2.23 per unit (table 33). The 17 instances of overselling revealed margins that ranged from 2.9 to 109.8 percent, or from $0.34 to $1.50 per unit. A single comparison of sales to distributors of 128K EPROM's in quantities over 10,000 units showed a margin of underselling by imported Japanese EPROM's of 75.1 percent, or $6.80.

Spot-market sales of 128K EPROM's.—Price data enabled 29 comparisons of monthly weighted-average net selling prices for 128K EPROM's sold in the spot market in quantities of 5,000 units or less. In 20 comparisons, imported EPROM's from Japan undersold the domestic product by margins that ranged from 0.5 to 51.5 percent, or from $0.01 to $3.52 per unit (table 34). The nine examples of overselling revealed margins that ranged from 0.3 to 33.3 percent, or from $0.03 to $2.50 per unit. A single comparison of prices for sales of over 10,000 units showed that the Japanese EPROM's undersold the domestic product by a margin of 22.2 percent, or $2.30 per unit.

256K EPROM's sold direct to circuit board stuffers.—Two monthly comparisons of prices for sales of the subject EPROM's to board stuffers revealed one instance of underselling by the Japanese EPROM's and the other overselling by the imported product. The margin of underselling was 8 percent ($0.40) and the overselling margin was 15 percent ($0.60) (table 35).

256K EPROM's sold to distributors.—Price data enabled 14 comparisons of monthly weighted-average net selling prices of EPROM's sold to distributors in quantities of 5,000 units or less. Imported Japanese EPROM's undersold the domestic product in 10 of these comparisons by margins that ranged from 5.2 to 54.0 percent, or from $0.30 to $7.46 per unit (table 36).

Table 31.—64K EPROM's (250 ns) sold factory direct in the spot-market: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984–October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	$-0.34	-6.9	–	–	–	–	–	–
July	-.34	-6.8	$-0.34	-7.7	–	–	–	–
August	-.58	-14.1	.13	2.9	–	–	–	–
September	–	–	–	–	–	–	–	–
October	.35	8.5	2.49	39.0	–	–	–	–
November	–	–	-.69	-16.8	–	–	–	–
December	–	–	.34	6.2	–	–	–	–
1985:								
January	–	–	–	–	–	–	–	–
February	-.20	-5.7	–	–	–	–	–	–
March	3.30	56.9	.50	16.7	–	–	–	–
April	.42	14.7	.26	-10.0	–	–	–	–
May	1.81	44.2	.06	-2.4	–	–	–	–
June	1.93	47.0	.66	24.7	–	–	–	–
July	2.19	53.4	.33	11.0	–	–	–	–
August	-.10	-5.6	1.37	42.0	–	–	–	–
September	4.32	63.2	-.01	-0.5	–	–	–	–
October	–	–	–	–	–	–	–	–

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 32.—128K EPROM's (250 ns) sold factory direct to circuit board stuffers: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984-October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	–	–	–	–	–	–	–	–
July	–	–	$-0.25	-2.5	–	–	–	–
August	–	–	–	–	–	–	–	–
September	$4.00	29.6	–	–	–	–	–	–
October	1.50	13.6	.75	6.8	–	–	–	–
November	2.75	22.5	–	–	–	–	–	–
December	5.50	40.7	–	–	–	–	–	–
1985:								
January	1.75	15.6	–	–	–	–	–	–
February	-1.00	-11.8	–	–	–	–	–	–
March	-1.00	-11.7	-.95	-20.2	–	–	–	–
April	-0.47	-9.2	2.50	53.2	$5.30	70.7	–	–
May	2.13	27.3	-.45	-10.5	1.80	47.4	–	–
June	–	–	–	–	–	–	–	–
July	–	–	–	–	–	–	–	–
August	–	–	–	–	–	–	–	–
September	–	–	-1.55	-106.9	–	–	–	–
October	–	–	–	–	–	–	–	–

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 33.—128K EPROM's (250 ns) sold factory direct to authorized distributors: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984–October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	$-3.84	-34.7	$-1.06	-8.1	-	-	-	-
July	-3.10	-24.5	-7.29	-74.2	-	-	-	-
August	0.26	2.1	0.88	7.6	-	-	-	-
September	-1.94	-19.0	-.34	-2.9	-	-	-	-
October	.06	0.6	1.23	11.8	-	-	-	-
November	-.40	-3.8	.26	2.5	-	-	-	-
December	.48	5.4	2.30	23.1	-	-	-	-
1985:								
January	-3.02	-52.7	.75	9.7	-	-	-	-
February	-.26	-4.4	2.51	35.4	-	-	-	-
March	-.44	-13.2	1.87	33.0	-	-	-	-
April	2.51	45.5	-.43	-15.0	-	-	-	-
May	1.98	48.1	-.33	-12.0	-	-	$6.80	75.1
June	2.23	50.4	-.63	-35.3	-	-	-	-
July	-1.18	-75.8	-.77	-41.9	-	-	-	-
August	.97	30.2	-1.50	-109.8	-	-	-	-
September	.92	23.9	-.36	-20.7	-	-	-	-
October	-	-	-	-	-	-	-	-

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 34.—128K EPROM's (250 ns) sold factory direct in the spot market: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984-October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	$4.80	33.6	–	–	–	–	–	–
July	2.12	16.3	–	–	–	–	–	–
August	1.23	10.2	$0.53	4.8	–	–	–	–
September	2.05	14.3	-.03	-0.3	–	–	–	–
October	1.68	11.8	-.39	-3.6	–	–	–	–
November	4.11	28.7	1.57	14.3	–	–	–	–
December	-2.50	-33.3	.47	4.5	–	–	$2.30	22.2
1985:								
January	2.56	21.2	–	–	–	–	–	–
February	0.58	6.6	-1.77	-22.2	–	–	–	–
March	-1.61	-26.9	-1.20	-25.3	–	–	–	–
April	-1.63	-31.7	-.25	-6.7	–	–	–	–
May	3.52	51.5	-.15	-5.0	–	–	–	–
June	.56	15.9	.74	22.8	–	–	–	–
July	1.01	27.7	2.12	43.8	–	–	–	–
August	.19	7.7	1.32	34.0	–	–	–	–
September	.01	0.5	.30	11.1	–	–	–	–
October	–	–	–	–	–	–	–	–

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 35.—256K EPROM's (250 ns) sold factory direct to circuit board stuffers: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984–October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-
1985:								
January	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-
May	-	-	$0.40	8.0	-	-	-	-
June	-	-	-.60	-15.0	-	-	-	-
July	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 36.—256K EPROM's (250 ns) sold factory direct to authorized distributors: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984–October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	–	–	–	–	–	–	–	–
July	–	–	–	–	–	–	–	–
August	–	–	–	–	–	–	–	–
September	–	–	–	–	–	–	–	–
October	–	–	–	–	–	–	–	–
November	–	–	–	–	–	–	–	–
December	–	–	–	–	–	–	–	–
1985:								
January	–	–	–	–	–	–	–	–
February	$1.29	10.4	–	–	–	–	–	–
March	1.48	13.5	$7.46	54.0	–	–	–	–
April	1.96	28.2	0.88	12.8	–	–	–	–
May	1.06	17.3	.30	5.2	–	–	–	–
June	1.66	26.2	.54	9.7	$1.09	17.3	–	–
July	–0.67	–17.1	–	–	–	–	–	–
August	.95	16.9	–.63	–19.2	–	–	–	–
September	–.04	–.9	–.60	–15.0	–	–	–	–
October	–	–	–	–	–	–	–	–

1/ Overselling is shown with a negative (–) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Margins of overselling by the imported EPROM's ranged from 0.3 to 19.2 percent, or from $0.04 to $0.63 per unit. A single comparison for sales of 5,000 to 10,000 units showed a margin of underselling by the imported product of 17.3 percent ($1.09).

Spot-market sales of 256K EPROM's.—Ten monthly comparisons of spot-market sales in quantities of 5,000 units or less showed that imported Japanese EPROM's undersold the domestic product in seven instances. Margins of underselling ranged from 3.8 to 69.0 percent, or from $0.18 to $17.84 per unit (table 37). Margins of overselling in the remaining three examples ranged from 25.0 to 138.9 percent, or from $1.00 to $18.75.

Lost sales

In its questionnaire, the Commission asked domestic producers to provide specific instances of lost sales of EPROM's to competing imports from Japan. * * * provided 42 allegations of such lost sales involving 23 different purchasers. * * * submitted 68 alleged lost sales naming 54 purchasers. 1/ The Commission staff investigated 28 of the allegations received, involving a total of 12 different purchasers. These allegations represented a possible sales volume of 758,000 units and revenue of * * *. 2/

* * * named * * * as the purchaser involved in two alleged lost sales of EPROM's in March 1985. The first involved a purchase of * * * 64K EPROM's for * * *; the second involved a purchase of * * * 256K EPROM's by * * *. * * * confirmed the latter allegation. * * * quote of * * * per unit was rejected in favor of a competing Japanese 256K offer price of * * * from * * *. * * * is still tracing the other allegation.

Three alleged lost sales of EPROM's cited * * * as the purchaser of imported Japanese EPROM's in three densities—64K, 128K, and 256K. * * * allegedly rejected * * * price quotations of * * *, * * *, and * * *, respectively, for the 3 EPROM densities noted above and accepted Japanese offer prices of * * *, * * *, and * * * for these respective devices. The alleged quantities were * * * (64K's), * * * (128K's), and * * * (256K's). * * * acknowledged that he had accepted lower priced offers for Japanese EPROM's but corrected certain quantity and price figures provided by * * *. * * * lists * * * as approved vendors for 64K EPROM's. 3/ * * * verified the purchase of 64K EPROM's from Japan as alleged, but noted that the Japanese vendor's order was for * * * units at * * * per unit. At that same time, U.S. suppliers other than * * * received a purchase order for * * * units at a price of * * * per unit.

1/ * * * listed 16 alleged lost sales by their distributors in competition with imported Japanese EPROM's but did not provide adequate information for verification.

2/ Aggregate value based on the producers' offer prices.

3/ * * * is talking to * * * regarding qualification.

Table 37.—256K EPROM's (250 ns) sold factory direct in the spot market: Average margins by which imports of Japanese EPROM's undersold or oversold 1/ U.S.-produced EPROM's based on weighted-average net selling prices, 2/ by sizes of sales and by months, June 1984–October 1985

(Per unit)

Period	1,000 units or less		Over 1,000 to 5,000 units		Over 5,000 units to 10,000		Over 10,000 units	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1984:								
June	–	–	–	–	–	–	–	–
July	–	–	–	–	–	–	–	–
August	–	–	–	–	–	–	–	–
September	–	–	–	–	–	–	–	–
October	–	–	–	–	–	–	–	–
November	–	–	–	–	–	–	–	–
December	–	–	–	–	–	–	–	–
1985:								
January	$-18.75	-138.9	–	–	–	–	–	–
February	4.84	32.6	–	–	–	–	–	–
March	17.84	69.0	–	–	–	–	–	–
April	3.32	29.4	–	–	–	–	–	–
May	–	–	–	–	–	–	–	–
June	0.18	3.8	–	–	–	–	–	–
July	7.33	62.0	–	–	–	–	–	–
August	2.22	30.8	$-1.00	-25.0	–	–	–	–
September	1.35	23.1	-0.85	-20.5	–	–	–	–
October	–	–	–	–	–	–	–	–

1/ Overselling is shown with a negative (-) sign.

2/ Margins are calculated from unrounded weighted-average prices.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The alleged purchase of Japanese 128K EPROM's was verified by * * * but again the quantities and prices were corrected. Of the alleged lost sale of * * * units, a * * *-unit order went to U.S. suppliers other than * * * at a price of * * * per unit. * * * was awarded a contract for * * * units. 1/ The price, however, was * * * per unit rather than * * * as alleged. * * * noted that * * * had lost the quantity of volume alleged but would not have known that only part of that volume went to the Japanese vendor.

The alleged lost sale for * * * 256K EPROM's was also confirmed by * * * but, as in the prior instances, the largest portion (* * * units) went to another U.S. supplier at a price of * * * per unit. The balance (* * * units) of the order was placed with a Japanese vendor at a price of * * *, pending qualification. The approval never materialized. That volume, says * * *, is currently going to * * *.

* * * was cited by * * * in six alleged lost sales of EPROM's to a competing imported Japanese product in October 1984. Two instances involved 64K EPROM's, two were for 126K, and two for 256K. Domestic quotes of * * * and * * * for quantities of * * * and * * * 64K EPROM's, respectively, were allegedly rejected in favor of competing Japanese offer prices of * * * and * * * for those products. On the 128K density, domestic prices of * * * and * * * for two different specification 128K products were allegedly rejected and offer prices of * * * for the Japanese product were accepted for quantities of * * * and * * * units, respectively. Domestic prices of * * * and * * * per unit for sales of * * * and * * * 256K EPROM's were allegedly rejected in favor of Japanese offer prices of * * * and * * * per unit. * * *. * * * stated that without specific facts as to which * * * production location was involved, it is not possible to verify or confirm the allegations. * * *, queried by the Commission staff for more specifics, asserts that these negotiations were conducted by * * *. * * * has not responded to a second inquiry by the Commission staff.

* * * named * * * as the purchaser involved in three alleged lost sales for 64K EPROM's in July, August, and November 1984. The quantity in each instance was * * * units and * * * rejected quote was * * * per unit. The allegedly accepted Japanese offer prices were, respectively, * * * in July and * * * in August and November. * * * checked her records and offered the following comments. Qualified vendors for 64K EPROM's included * * *. * * * product used a programming voltage of * * * volts, whereas, * * * required * * * volts. * * * access speed was too slow. Neither firm was asked to bid on this umbrella contract for * * * units covering scheduled deliveries over 1 year. At the time of this RFQ, * * * was in the process of changing their die and did not bid. * * * was awarded the entire contract at a price of * * * per unit. * * * may have been a competitor initially, but was not after it was determined that the * * * 64K chip voltage would not meet * * * specifications.

1/ * * * was the only approved Japanese vendor for 128K EPROM's.

* * * identified * * * in an alleged lost sale for * * * 64K EPROM's in June 1984. * * * quote of * * * was allegedly rejected in favor of a Japanese offer price of * * * per unit. * * * confirmed that * * * lost the sale. However, the order was split between * * *. * * * won * * * percent of the * * *-unit order (* * * units), * * * was awarded * * * percent (* * * units), and * * * percent (* * * units) went to * * *. The price per unit was * * * from each vendor. * * * emphasized that * * * lost the award in part because its initial quote was "way out of line" with the market. All other bids were at a "clustered price level." Moreover, * * *.

* * * named * * * as purchaser in an alleged lost sale of * * * 128K EPROM's to competing products imported from Japan. * * * confirmed that he had purchased the Japanese EPROM's from * * *. The quantity, however, was cut to * * * as demand fell for * * * products. The rejected price quote of * * * was * * * as alleged, but the * * * offer price was * * * rather than * * * as * * * believed. * * * qualified vendor list on this 128K EPROM includes * * *. * * * is in the process of qualifying but at present has not been approved.

* * * was cited by * * * in an alleged lost sale for * * * 128K EPROM's in January 1985. * * * allegedly rejected a domestic quote of * * * and accepted a quote of * * * for Japanese 128K EPROM's. * * *. * * * confirmed buying the Japanese EPROM's. The order went to * * *. The RFQ went out to four or five distributors. The * * *-unit award was for a 12-month contract with month-to-month deliveries. The accepted price was * * * as alleged.

* * * cited * * * in another alleged lost sale for * * * 64K EPROM's in June 1985 and a sale of * * * 256K EPROM's in August 1985. Domestic offer prices of * * * and * * * were rejected in favor of a Japanese product offered at respective prices of * * * and * * * per unit. * * * recalls the inquiry and the offer prices, but stated that no awards were made by * * * for domestic or Japanese EPROM's. * * *. U.S. prices offered by domestic and Japanese vendors were not competitive with European vendor prices. Consequently, no orders were placed.

* * * was named in five allegations involving lost sales during January-April 1985 that totaled * * * in value and spanned EPROM densities from 32K to 256K. These were instances in which * * * faced competing offer prices from distributors of Japanese EPROM's or from Japanese vendors quoting direct. Price levels were as follows: 32K - domestic price * * * vs. import price of * * *; 64K - domestic price * * * vs. import price of * * *; 128K - domestic price of * * * vs. import price of * * *; 256K - domestic price of * * * vs. import price of * * *.

* * * checked the firm's records and reported that without more explicit facts, he could not trace the five alleged lost sales to one of the firm's * * * U.S. locations. * * * did affirm that the level of alleged prices fits the market experience of * * * in facing competition from Japanese EPROM's in each of the cited densities.

* * * identified * * * in two instances of alleged lost sales. One, in May 1985, involved an order for * * * 256K EPROM's. A domestic quote of * * * was allegedly rejected in favor of an offer price of * * * for a competing Japanese product. Another allegation involved an order for * * * 64K EPROM's in August 1985. A Japanese offer price of * * * won out against a domestic quote of * * * per chip. * * * confirmed the facts as alleged. The order for 256K EPROM's was awarded to * * *; the award went to * * * for the 64K EPROM's. The contract was for scheduled delivery over a 1-year period. 1/

* * * named * * * in two instances in August 1985 as the purchaser involved in alleged lost sales totaling * * * EPROM's. * * * reported that its quote for * * * per unit for * * * devices (32K density) was rejected in favor of Japanese-produced devices offered at * * * per unit. * * * said that the order was not placed with a Japanese supplier, but with * * * for * * * per unit, as part of a large order for a variety of semiconductor parts. In the other case, * * * reported that its quote for * * * per unit for * * * devices (64K density) was rejected in favor of Japanese-produced devices at * * * per unit. * * * reported that he contacted * * * which had agreed to supply the part at * * * per unit. * * * said that * * * part had a lower failure rate and that * * * provides better support after a sale is completed.

* * * reported that he believes that * * *. * * *. He reported that he gave U.S. producers about * * * percent of his business until August 1985. At that time, he said that U.S. producers reported that they were losing money and had to raise their prices to * * * per unit and above. * * * said that since that time, Japanese suppliers have accounted for * * * percent of his business.

* * * identified * * * as a large contract that was lost to Japanese suppliers. The specific contract identified by * * * was awarded on * * *, for * * * units (128K density) for * * *. * * * rejected quote was reported at * * *. * * * reported that the quantity of devices was actually * * * units, but the value reported by * * * covered a contract for a variety of semiconductor devices in addition to EPROM's. * * * reported that her firm purchases from * * * to * * * EPROM's annually and that * * * domestic firms (* * *) and two Japanese firms (* * *) are qualified suppliers.

In the instance cited by * * *, * * * reported that she obtained four quotes for the * * * units and that she made no attempt to auction the bids after the quotes were received. The lowest of the quotes was provided by * * * (* * *), followed by * * * (* * *) and * * * (* * *). The highest bidder was * * * with a quote of * * *. * * * reported that there was no quality difference between the product supplied by any of the qualified suppliers. She reported that Japanese suppliers were very aggressive in obtaining orders of this size. She reported also that she really preferred * * * products, but she must obtain the best price possible because of severe import competition from Japanese suppliers of * * *.

1/ * * * RFQ's were received by * * * in response to these inquiries. Both distributors and producers, as well as importers, responded with offer prices.

Lost revenue

Domestic producers were requested to provide specific instances in which they had to reduce prices in order to avoid losing sales of EPROM's to competing products imported from Japan. * * * provided 24 instances of alleged lost revenue involving six different purchasers. * * * listed 69 allegations naming 53 different purchasers. The Commission staff investigated 34 of the allegations, which involved 11 purchasers.

* * * named * * * in two instances of alleged lost revenue in July 1985. The first was a domestic quote of * * * for an order of * * * 64K EPROM's. The accepted quote was * * *, a price offered in meeting Japanese product competition. A second instance was a quote of * * * revised to * * * for an order of * * * 256K EPROM's, again to meet competing Japanese offer prices. * * * was unable to find records of these orders. * * * was requested to provide more specifics on these allegations. * * * stated that both of these instances were for EPROM's to be used in * * *. There was an error in the specified product description. The contract is still pending on the 64K EPROM's but there was an award of * * * units to * * * for the 256K product with a * * * unit award to a Japanese competitor according to * * *. * * * has not responded to the second staff inquiry.

* * * was named by * * * in eight alleged instances of lost revenue that totaled about * * * in value for a total quantity of * * * EPROM's of various densities. The densities, quantities, and prices are shown by quote date in the following tabulation:

* * * * * * *

* * * confirmed the allegations with respect to revised prices to meet Japanese competition. He noted, however, that quantities were cut on these "intent to buy contracts," which covered deliveries beginning in October 1984 and extended, open ended, for 5 years. * * * believes that in 1986, supply may be tight on certain EPROM's. The initial contract established benchmark quantities and prices. Prices were negotiated downward quarterly on an incremental basis. Quantities were cut by an estimated * * * percent during the last 12-month period. * * *. There were some errors in the facts presented by * * * according to * * *. One of the 64K EPROM orders was for * * * units at * * * rather than * * *; another 64K order was for * * * units at * * * rather than * * *. The order for * * * 128K EPROM's at * * * was only * * * and the * * *-unit order at * * * for 128K EPROM's was increased to * * *. The 256K EPROM order was cut from * * * units to * * * at * * * per unit.

* * * named * * * as the purchaser in four instances of alleged lost revenue on EPROM sales in August 1985. Two allegations involved 64K EPROM's in quantities of * * * and * * * units and initial prices of * * * and * * *, respectively, that were reduced to * * * and * * * to meet lower priced Japanese offers. Two other allegations were for orders of * * * and * * * 256K units. The initial rejected quotes were * * * and * * *, respectively, reduced to * * * and * * * per unit in the face of lower offer prices for Japanese EPROM's. * * * checked with * * * buyers and confirmed the prices and quantities almost exactly as alleged. However, only two firms, * * * and * * *, are approved vendors for these products according to * * *. * * * had no Japanese quotes on these products but was aware of the general market prices, which included the competitive presence of Japanese vendors.

* * * was named by * * * as the purchaser in seven instances of alleged lost revenue, all in September 1985. The densities, quantities, and prices are shown in the following tabulation:

* * * * * * *

* * * checked his records and confirmed the facts as alleged. Qualified vendors approved by * * * include * * *. The contracts for these EPROM's are for calendar year 1986, with "downward price negotiation" at * * * option. * * * viewed the market as soft, noting that some * * * production sources also bought on the spot market when they needed to fill out a production requirement. This total quantity of sales amounted to lost revenue of about * * *.

* * * was cited by * * * in an instance of alleged lost revenue in April 1985. This involved an initial quote of * * * per unit on an order for * * * 256K EPROM's and an accepted quote of * * * to meet Japanese product competition. * * * confirmed the facts as alleged. * * * does not have a formal qualified vendor list, but receives samples from firms who quote prices for EPROM's and she then asks their engineering division to pass on the specifications of the generic product. * * * has purchased 256K EPROM's only from * * *, but has used Japanese prices as leverage to negotiate lower prices from domestic vendors.

* * * was identified by * * * in an instance of alleged lost revenue in September 1985. The order was for * * * 64K EPROM's and the initial offer price of * * * allegedly was negotiated down to * * * to meet competition from a Japanese product. * * * acknowledged the price reduction in the face of competing Japanese EPROM's but noted that the order was placed for * * * units. The qualified vendors approved by * * * include * * *. * * * normally orders quarterly for scheduled delivery to production run rates. The firm has just began to use 128K and 256K EPROM's.

* * * was named by * * * as the purchaser in seven instances of alleged lost revenue. The quote dates, quantities, and offer prices are shown below:

* * * * * * *

* * * checked his records and identified the above purchase orders. He confirmed the facts as alleged. As for the Japanese price leadership, * * * noted that in May 1984 * * * quoted * * * against an * * * price of * * * for 64K EPROM's. Approved EPROM suppliers for * * * include * * *. * * *, in the spring of 1985, quoted higher prices than * * *. The strongest downward price pressure was from * * *.

* * * cited * * * in three instances of lost revenue, all in March 1985. The EPROM densities, quantities, and price quotes are shown below:

* * * * * * *

* * * traced these purchases in the firm's records and confirmed that * * * had decreased its prices in meeting price competition from Japanese vendors offering lower prices. * * * states that the domestic producers know who their competition is, as a qualified supplier list is provided to all approved vendors by * * * and periodically revised. Approved suppliers for 128K EPROM's include * * *. * * * are on the qualified list for 256K EPROM's. * * * also recalled that the initial order for the 128K EPROM's was * * * units and that in May 1985, the order was reduced to * * *. * * * commented on prices, noting that the initial price leaders were the Japanese early in this year, but "today the Japanese and domestic producers are quoting competitive prices."

* * * also listed * * * as a purchaser in two instances of alleged lost revenue in August 1985. The first allegation involved a price cut from * * * to * * * on an order for * * * 128K EPROM's. Another allegation involved an order for * * * 256K EPROM's and a price cut from * * * to * * * per unit. Both instances allegedly were to meet Japanese competition situations. According to * * *, both allegations were accurate reflections of the negotiations and ultimate purchase prices.

* * * was identified by * * * as the purchaser in two instances of alleged lost revenue on sales of 64K EPROM's, one in April 1985 and another in June 1985. The first order by * * * was for * * * 64K EPROM's after * * * allegedly dropped its offer price from * * * to * * * per unit. The second instance involved a sale of * * * 64K EPROM's at a price of * * *, down from an initial rejected quote of * * *. * * * stated that RFQ's were put out for bids to all qualified vendors. Qualified vendors included * * *. * * * awards her 6-month contracts to the vendor with the "best price and delivery" offer. She has awarded contracts to * * *. The alleged instances reported by * * * were accurate representations of the contract awards. These 6-month contracts for scheduled monthly deliveries were subject to price renegotiation if market prices dropped. In these contracts, * * * "ramped up" its production and took the total quantity in 3 months. Then, * * * put out another RFQ and split that award between * * *.

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* * * was cited by * * * as an example of alleged lost revenue in the sale of * * * 64K EPROM's in July 1985. * * * allegedly reduced its price from * * * to * * * to win the award. * * * checked his records and confirmed the facts as alleged. Qualified vendors approved by the company include * * *. At times, * * * procures from these vendors directly and at other times, through distributors, depending on the price and the need for quick delivery or the desire not to hold inventory. The subject purchase of * * * EPROM's was made through * * *. The distributor channel was preferred because production of the company's * * * fell in 1985 from * * * to * * * per month. * * * procures about * * * percent of his needed supply from domestic vendors and * * * percent from Japanese firms.

* * * identified * * * in an instance in which its quote for * * * 32K EPROM's was reduced from * * * to * * * to obtain the order. * * * reported that two Japanese producers (* * *) and two domestic producers (* * *) were qualified suppliers. She said that on * * *, * * * agreed to lower its price of * * * per unit to match a quote of * * * per unit offered by * * *. * * * reported that * * * had an excellent product line and provided good after-sales support. She said that her firm makes every effort to purchase domestic products, but purchasing regulations do not permit her to award contracts to domestic suppliers that offer prices * * * percent or higher than foreign suppliers.

In another lost revenue allegation, * * * identified the * * *. * * * allegedly purchased * * * 256K EPROM's after * * * reduced its price from * * * to * * * per unit. The initial quotes were placed in October 1984. * * * outlined the negotiations on this transaction. The company initially used 128K EPROM's for its new production program but asked also for quotes on 256K EPROM's. Engineering ultimately required more memory in less board space. Initial quotes on * * *, on the 256K were made by * * * (* * * per unit), * * * (* * * per unit), and * * * (* * * per unit). The contract award was for 1 year with delivery scheduled to begin in January 1985. A rebid on the 256K was requested in February when * * * decided to use 256K rather than 128K EPROM's. * * * came in at * * *, * * * quoted * * * per unit. The award went to * * *. The prices quoted were factory direct but the supply was through the distributor. * * * uses the distributor to program the EPROM and to mark the part with * * * part number. * * * noted that the award provided for a range in quantity from about * * * to * * * units, depending on how the new product line sells. * * * stated that demand is on the upswing for * * *, even in this down market. Supply from * * * early in the delivery period was * * * noted * * *, but * * * has met the needs of * * * since then. * * * said that * * * supports * * * on other products and * * * feels an obligation in turn to support * * *, but the price must be competitive.

91.

Exchange rates

Table 38 presents nominal and real exchange rate indexes for U.S. dollars per Japanese yen. The real exchange rate index that is displayed represents the nominal exchange rate index adjusted for the difference in the relative inflation rates between the United States and Japan. As shown in the table, the nominal value of the Japanese yen depreciated against the nominal value of the U.S. dollar by 7 percent between January-March 1982 and April-June 1985. The real (inflation-adjusted) index, however, shows that the Japanese yen actually depreciated by 12 percent during that period.

Table 38.--Indexes of nominal and real exchange rates between the U.S. dollar and the Japanese yen, by quarters, January 1982-June 1985

(January-March 1982=100)

Period	U.S. dollars per Japanese yen (nominal rate)	U.S. dollars per Japanese yen (real rate)
1982:		
January-March	100.0	100.0
April-June	95.6	95.8
July-September	90.2	90.9
October-December	89.9	90.4
1983:		
January-March	99.0	97.6
April-June	98.3	95.6
July-September	96.3	92.9
October-December	99.7	95.1
1984:		
January-March	101.1	95.6
April-June	101.7	95.4
July-September	95.9	90.9
October-December	94.9	89.9
1985:		
January-March	90.6	86.4
April-June	93.0	88.1

Source: International Financial Statistics, International Monetary Fund, June 1985.

APPENDIX A

COMMISSION'S NOTICE OF INSTITUTION

[Investigation No. 731–TA–288 (Preliminary)]

Erasable Programmable Read Only Memories (EPROMs) From Japan

AGENCY: International Trade Commission.

ACTION: Institution of a preliminary antidumping investigation and scheduling of a conference to be held in connection with the investigation.

SUMMARY: The Commission hereby gives notice of the institution of preliminary antidumping investigation No. 731–TA–288 (Preliminary) under section 733(a) of the Tariff Act of 1930 (19 U.S.C. 1673b(a)) to determine whether there is a reasonable indication that an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports from Japan of erasable programmable read only memories (EPROMs), provided for in item 687.74 of the Tariff Schedules of the United States, which are alleged to be sold in the United States at less than fair value. As provided in section 733(a), the Commission must complete preliminary antidumping investigations in 45 days, or in this case by November 14, 1985.

For further information concerning the conduct of this investigation and rules of general application, consult the Commission's Rules of Practice and Procedure, Part 207, Subparts A and B (19 CFR Part 207), and Part 201, Subparts A through E (19 CFR Part 201).

EFFECTIVE DATE: September 30, 1985.

FOR FURTHER INFORMATION CONTACT: Ilene Hersher (202–523–4616), Office of Investigations, U.S. International Trade Commission, 701 E Street NW., Washington, DC 20436. Hearing-impaired individuals are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on 202–724–0002.

SUPPLEMENTARY INFORMATION:

Background.—This investigation is being instituted in response to a petition filed on September 30, 1985 by Intel Corp., Santa Clara, CA; Advanced Micro Devices, Sunnyvale, CA; and National Semiconductor Corp., Santa Clara, CA.

Participation in the investigation.—Persons wishing to participate in this investigation as parties must file an entry of appearance with the Secretary to the Commission, as provided in § 201.11 of the Commission's rules (19 CFR 201.11), not later than seven (7) days after publication of this notice in the Federal Register. Any entry of appearance filed after this date will be referred to the Chairwoman, who will determine whether to accept the late entry for good cause shown by the person desiring to file the entry.

Service list.—Pursuant to § 201.11(d) of the Commission's rules (19 CFR 201.11(d)), the Secretary will prepare a service list containing the names and addresses of all persons, or their representatives, who are parties to this investigation upon the expiration of the period for filing entries of appearance. In accordance with §§ 201.16(c) and 207.3 of the rules (19 CFR 201.16(c) and 207.3), each document filed by a party to the investigation must be served on all other parties to the investigation (as identified by the service list), and a certificate of service must accompany the document. The Secretary will not accept a document for filing without a certificate of service.

Conference.—The Commission has scheduled a conference in connection with this investigation for 9:30 a.m. on October 21, 1985, at the U.S. International Trade Commission Building, 701 E Street NW., Washington, DC. Parties wishing to participate in the conference should contact Ilene Hersher (202–523–4616) not later than October 15, 1985, to arrange for their appearance. Parties in support of the imposition of antidumping duties in this investigation and parties in opposition to the imposition of such duties will each be collectively allocated one hour within which to make an oral presentation at the conference.

Written submissions.—Any person may submit to the Commission on or before October 23, 1985, a written statement of information pertinent to the subject of the investigation, as provided in § 207.15 of the Commission's rules (19 CFR 207.15). A signed original and fourteen (14) copies of each submission must be filed with the Secretary to the Commission in accordance with § 201.8 of the rules (19 CFR 201.8). All written submissions except for confidential business data will be available for public inspection during regular business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary to the Commission.

Any business information for which confidential treatment is desired must be submitted separately. The envelope and all pages of such submissions must be clearly labeled "Confidential Business Information." Confidential submissions and requests for confidential treatment must conform with the requirements of § 201.6 of the Commission's rules (19 CFR 201.6).

Authority

This investigation is being conducted under authority of the Tariff Act of 1930, title VII. This notice is published pursuant to § 207.12 of the Commission's rules (19 CFR 207.12).

By order of the Commission.

Issued: October 3, 1985.

Kenneth R. Mason,

Secretary.

[FR Doc. 85-24189 Filed 10-8-85; 8:45 am]

BILLING CODE 7020-02-M

APPENDIX B

CALENDAR OF PUBLIC CONFERENCE

CALENDAR OF PUBLIC CONFERENCE

Investigation No. 731-TA-288 (Preliminary)

ERASABLE PROGRAMMABLE READ ONLY MEMORIES (EPROM's) FROM JAPAN

Those listed below appeared at the United States International Trade Commission's conference held in connection with the subject investigation on October 21, 1985, in the Hearing Room of the USITC Building, 701 E Street, NW., Washington, DC.

In support of the imposition of antidumping duties

Dewey, Ballantine, Bushby, Palmer & Wood--Counsel
Washington, DC
on behalf of -

Intel Corp.
Advanced Micro Devices, Inc.
National Semiconductor Corp.

eorge Schneer, Vice President and General Manager, Memory Components Division, Intel Corp.

David Bostwick, Director of Strategic Marketing, Non-volatile Memory Division, Advanced Micro Devices, Inc.

Dr. William F. Finan, Partner, Quick, Finan and Associates

Mr. Robert Perlman, Assistant Treasurer, Intel Corp.

R. Michael Gadbaw--OF COUNSEL

In opposition to the imposition of antidumping duties

Fenwick, Davis & West--Counsel
Palo Alto, CA and Washington, DC
on behalf of--

Fujitsu Microelectronics, Inc.
Fujitsu Limited

L. Daniel O'Neill)
Ronald S. Poelman)--OF COUNSEL
Donald R. Davis)

CALENDAR OF PUBLIC CONFERENCE -Continued

In opposition to the imposition of antidumping duties--Continued

Baker & McKenzie -Counsel
Washington, DC
on behalf of -

Mitsubishi Electric Corp.
Mitsubishi Electronics America, Inc.

William D. Outman, II- OF COUNSEL

Metzger, Shadyac & Schwarz -Counsel
Washington, DC
on behalf of -

Hitachi America, Ltd.

William H. Barrett -OF COUNSEL

APPENDIX C

COMMERCE'S NOTICE OF INSTITUTION

[A-588-504]

Erasable Programmable Read Only Memories (EPROMs) From Japan: Initiation of Antidumping Duty Investigation

AGENCY: International Trade Administration, Import Administration, Commerce.

ACTION: Notice.

SUMMARY: On the basis of a petition filed in proper form with the United States Department of Commerce, we are initiating an antidumping duty investigation to determine whether erasable programmable read only memories (EPROMs) from Japan are being, or are likely to be, sold in the United States at less than fair value. We are notifying the United States International Trade Commission (ITC) of this action so that it may determine whether imports of this product are causing material injury, or threaten material injury, to a United States industry. If this investigation proceeds normally, the ITC will make its preliminary determination on or before November 14, 1985, and we will make ours on or before March 10, 1986.

EFFECTIVE DATE: October 28, 1985.

FOR FURTHER INFORMATION CONTACT: Francis R. Crowe; Office of Investigations Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, D.C. 20230; telephone: (202) 377-4087.

SUPPLEMENTARY INFORMATION:

The Petition

On September 30, 1985, we received a petition in proper form filed by Intel Corporation, Advanced Micro Devices, Inc., and National Semiconductor Corporation on behalf of the EPROM industry in the United States. In compliance with the filing requirements of § 353.36 of the Commerce Regulations (19 CFR 353.36), the petition alleged that imports of the subject merchandise from Japan are being, or are likely to be, sold in the United States at less than fair value within the meaning of section 731 of the Tariff Act of 1930, as amended (the Act), and that these imports are causing material injury, or threaten material injury, to a United States industry.

The petitioners based the United States price upon price quotations made to customers of one of the petitioners by Japanese companies.

Petitioners based foreign market value on constructed value because they alleged that home market sales of EPROMs were made at prices below the cost of production. Petitioners constructed values for three of the largest selling types (densities) of Japanese EPROMs based on a model of one of the Japanese manufacturer's costs. The model was prepared by a consultant to the petitioners. Estimates were developed from the consultant's knowledge of specific Japanese costs, validated by comparison to U.S. costs for similar production activities. Adjustments were made as necessary to account for general expenses; material, labor and capital costs; and for profit.

Based upon the comparison of United States price and foreign market value, petitioners allege dumping margins of from 77 to 227 percent.

Initiation of Investigation

Under section 732(c) of the Act, we must determine, within 20 days after a petition is filed, whether it sets forth the allegations necessary for the initiation of an antidumping duty investigation and further, whether it contains information reasonably available to the petitioner supporting the allegations.

We examined the petition on EPROMs from Japan and have found that it meets the requirements of section 732(b) of the Act. Therefore, in accordance with section 732 of the Act, we are initiating an antidumping duty investigation to determine whether EPROMs from Japan are being, or are likely to be, sold in the United States at less than fair value. We are also investigating the allegation of sales below the cost of production. If our investigation proceeds normally, we will make our preliminary determination by March 10, 1985.

Scope of Investigation

The products covered by this investigation are erasable programmable read only memories which are a type of memory integrated circuit that is manufactured using variations of Metal Oxide-Semiconductor (MOS) process technology, including both Complementary (CMOS) and N-Channel (NMOS). The products include processed wafers, dice and assembled EPROMs produced in Japan and imported into the United States from Japan. Finished EPROMs are currently provided for in the Tarriff Schedules of the United States Annotated (TSUSA) under item 687.7445. Unassembled EPROMs, including unmounted chips, wafers and dice, are provided for under TSUSA item 687.7405.

Processed wafers and dice produced in Japan and assembled into finished EPROMs in another country prior to importation into the United States from the other country are tentatively included in the scope of the investigation. In the course of this proceeding we will determine whether to continue to include these indirect imports in the scope of this investigation. We invite comments, from those not involved in this proceeding as well as from parties to the proceeding, on this issue. We request that such comments be submitted prior to January 27, 1986.

Notification of ITC

Section 732(d) of the Act requires us to notify the ITC of this action and to provide it with the information we used to arrive at this determination. We will notify the ITC and make available to it all nonprivileged and nonconfidential information. We will also allow the ITC access to all privileged and confidential information in our files, provided it confirms that it will not disclose such information either publicly or under an administrative protective order without the consent of the Deputy Assistant Secretary for Import Administration.

Preliminary Determination by ITC

The ITC will determine by November 14, 1985, whether there is a reasonable indication that imports of EPROMs from Japan are cuesing material injury, or threaten material injury, to a United States industry. If its determination is negative, the investigation will terminate; otherwise, it will proceed according to the statutory procedures.

Dated: October 21, 1985.

John L. Evans,

Acting Deputy Assistant Secretary for Import Administration.

[FR Doc. 85-25608 Filed 10-25-85; 8:45 am]

BILLING CODE 3510-DS-M

APPENDIX D

COMMENTS BY U.S. PRODUCERS ON THE IMPACT OF IMPORTS FROM JAPAN

101.

* * * * * * *

APPENDIX E

SUPPLEMENTAL PRICE TABLES

Table E-1.—64K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 1,000 units or less to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index
1984:												
June	$4.25	100	$4.51	100	$5.00	100	-	-	$3.86	100	$5.34	100
July	4.25	100	4.92	109	5.00	100	-	-	3.57	92	5.34	100
August	7.50	176	4.53	100	4.10	82	-	-	4.09	106	4.68	88
September	4.10	96	4.87	108	-	-	$4.25	100	3.98	103	5.05	95
October	5.10	120	4.38	97	4.10	82	-	-	4.38	113	3.75	70
November	5.75	135	4.79	106	-	-	3.50	82	3.92	102	3.90	73
December	4.75	112	4.10	91	-	-	-	-	3.06	79	3.50	66
1985:												
January	3.50	82	3.88	86	-	-	-	-	2.82	73	2.96	55
February	3.92	92	2.48	55	3.60	72	-	-	2.26	59	3.80	71
March	3.75	88	2.09	46	5.80	116	-	-	1.83	47	2.50	47
April	-	-	1.91	42	2.85	57	-	-	1.67	43	2.43	46
May	5.80	136	1.80	40	4.10	82	-	-	1.46	38	2.29	43
June	2.75	65	1.87	41	4.10	82	-	-	1.48	38	2.17	41
July	-	-	1.50	33	4.10	82	-	-	1.50	39	1.91	36
August	2.09	49	1.11	25	1.80	36	4.25	100	1.70	44	1.90	36
September	-	-	0.98	22	6.25	125	-	-	2.12	55	1.93	36
October	-	-	1.10	24	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-2.—64K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 1,000 to 5,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984–October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index
1984:												
June	$4.50	100	$4.15	100	-	-	-	-	$4.35	100	$3.90	100
July	4.25	94	5.66	136	$4.50	100	-	-	3.71	85	4.84	124
August	4.10	91	4.94	119	4.50	100	-	-	4.67	107	4.37	112
September	4.75	106	4.92	119	-	-	-	-	4.14	95	4.21	108
October	4.50	100	4.29	103	6.39	142	-	-	4.42	102	3.90	100
November	4.75	106	4.19	101	4.10	91	-	-	3.55	82	4.79	123
December	4.50	100	3.76	91	5.50	122	$4.25	100	3.00	69	5.16	132
1985:												
January	4.50	100	1.95	47	-	-	4.25	100	2.67	61	3.43	88
February	4.99	111	2.37	57	-	-	-	-	1.97	45	2.95	76
March	5.80	129	2.43	59	3.00	67	4.25	100	1.94	45	2.50	64
April	2.80	62	1.98	48	2.57	57	2.00	47	1.60	37	2.83	73
May	2.75	61	1.80	43	2.50	56	1.40	33	1.77	[illegible]	2.56	66
June	3.15	70	1.77	43	2.66	59	1.90	45	1.53	35	2.00	51
July	3.35	74	1.03	25	3.00	67	1.90	45	1.72	40	2.67	60
August	1.00	22	1.08	26	3.27	73	1.90	45	1.50	34	1.90	49
September	1.49	33	0.96	23	1.89	42	2.20	52	2.00	46	1.90	49
October	-	-	0.96	23	-	-	-	-	1.40	32	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

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Table E-3.--64K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 5,000 to 10,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index
1984:												
June	-	-	-	-	$7.60	-	-	-	$4.00	100	-	-
July	$5.75	100	$6.50	100	-	-	-	-	-	-	-	-
August	5.75	100	6.52	100	-	-	-	-	4.00	100	-	-
September	5.50	96	4.85	75	-	-	$4.25	100	4.97	124	-	-
October	4.80	83	-	-	-	-	4.25	100	2.80	70	-	-
November	4.50	78	5.77	89	-	-	-	-	-	-	-	-
December	4.95	86	3.75	58	-	-	-	-	-	-	-	-
1985:												
January	5.50	96	-	-	-	-	-	-	2.70	68	$2.80	100
February	6.11	106	3.37	52	-	-	-	-	3.48	87	-	-
March	-	-	2.90	45	-	-	-	-	2.00	50	2.90	104
April	2.75	48	3.55	55	-	-	-	-	1.60	40	1.90	68
May	-	-	1.73	27	2.57	34	-	-	2.00	50	-	-
June	1.68	29	1.34	21	-	-	-	-	2.00	50	-	-
July	1.56	27	1.05	16	-	-	-	-	-	-	-	-
August	-	-	1.45	22	-	-	-	-	-	-	-	-
September	1.05	18	0.88	14	-	-	-	-	-	-	-	-
October	1.05	18	-	-	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-4.--64K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of over 10,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index
1984:												
June	$5.25	100	-	-	-	-	-	-	-	-	-	-
July	5.50	105	-	-	-	-	-	-	-	-	-	-
August	5.25	100	-	-	-	-	-	-	-	-	-	-
September	4.97	95	$6.55	100	-	-	-	-	$4.00	100	-	-
October	4.90	93	-	-	-	-	-	-	4.00	100	$5.50	100
November	4.90	93	4.50	69	-	-	-	-	3.50	88	5.50	100
December	4.77	91	-	-	-	-	-	-	3.25	81	-	-
1985:												
January	4.45	85	-	-	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-	2.50	62	-	-
March	5.75	110	-	-	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-	1.50	38	-	-
May	-	-	2.25	34	-	-	-	-	-	-	-	-
June	-	-	3.45	53	-	-	-	-	2.00	50	-	-
July	-	-	2.70	41	-	-	-	-	-	-	4.00	73
August	-	-	-	-	-	-	-	-	-	-	-	-
September	2.95	56	-	-	$250	100	-	-	-	-	-	-
October	-	-	3.20	49	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

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Table E-5.--128K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 1,000 units or less to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index
1984:												
June	$12.95	100	$11.08	100	$14.30	100	-	-	$14.92	100	$9.50	100
July	12.95	100	12.64	114	13.00	91	-	-	15.74	105	10.88	115
August	12.25	95	12.33	111	12.00	84	-	-	12.07	81	10.77	113
September	13.50	104	10.23	92	14.30	100	$9.50	100	12.17	82	12.25	129
October	11.00	85	10.55	95	14.30	100	9.50	100	10.49	70	12.62	133
November	12.25	95	10.72	97	14.30	100	9.50	100	11.13	75	10.19	107
December	13.50	104	8.83	80	7.50	52	8.00	84	8.36	56	10.00	105
1985:												
January	11.25	87	5.72	52	12.05	84	9.50	100	8.74	59	9.49	100
February	8.50	66	5.88	53	8.80	62	9.50	100	6.13	41	8.22	87
March	8.50	66	3.31	30	6.00	42	9.50	100	3.75	25	7.61	80
April	5.17	40	5.52	50	5.15	36	5.65	59	3.01	20	6.79	71
May	7.78	60	4.12	37	6.84	48	5.65	59	2.14	14	3.31	35
June	20.80	161	4.42	40	3.55	25	3.00	32	2.19	15	2.98	31
July	9.65	75	1.56	14	3.65	26	-		2.74	18	2.64	28
August	2.42	19	3.22	29	2.51	18	-		2.25	15	2.32	24
September	6.95	54	3.85	35	2.48	17	-		2.93	20	2.47	26
October	3.00	23	1.40	13	3.00	21	-		-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-6.--128K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 1,000 to 5,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index
1984:												
June	$11.00	100	$13.18	100	-	-	-	-	$14.24	100	$11.80	100
July	10.00	91	9.83	75	-	-	$10.25	100	17.12	120	13.61	115
August	11.25	102	11.71	89	$10.95	100	-	-	10.82	76	10.42	88
September	11.25	102	11.91	90	10.95	100	-	-	12.25	86	10.98	93
October	11.00	100	10.42	79	10.95	100	10.25	100	9.19	65	11.34	96
November	11.00	100	10.37	79	10.95	100	-	-	10.11	71	9.38	79
December	8.25	75	9.93	75	10.50	96	-	-	7.63	54	10.03	85
1985:												
January	9.50	86	7.75	59	-	-	-	-	7.00	49	7.41	63
February	7.90	72	7.10	54	8.00	73	-	-	4.59	32	9.77	83
March	4.70	43	5.68	43	4.75	43	5.65	55	3.80	27	5.95	50
April	4.70	43	2.89	22	3.82	35	2.20	21	3.33	23	4.07	34
May	4.30	39	2.80	21	3.00	27	4.75	46	3.14	22	3.15	27
June	2.10	19	1.78	14	3.27	30	-	-	2.40	17	2.53	21
July	-	-	1.84	14	4.85	44	-	-	2.62	18	2.72	23
August	2.20	20	1.37	10	3.90	36	-	-	2.87	20	2.57	22
September	1.45	13	1.74	13	2.70	25	3.00	29	2.10	15	2.40	20
October	-	-	1.60	12	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-7.--128K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 5,000 to 10,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index
1984:												
June	$19.75	100	-	-	-	-	-	-	-	-	-	-
July	11.00	56	$25.00	100	-	-	-	-	-	-	$11.00	100
August	11.00	56	-	-	-	-	-	-	-	-	-	-
September	11.00	56	11.75	47	-	-	-	-	-	-	-	-
October	14.25	72	-	-	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-	-	-	-	-
December	-	-	9.00	36	-	-	-	-	-	-	7.85	71
1985:												
January	8.25	42	9.00	36	-	-	-	-	-	-	12.00	109
February	8.25	42	-	-	-	-	-	-	$6.30	100	-	-
March	12.00	61	-	-	-	-	-	-	4.50	71	-	-
April	7.50	38	-	-	-	-	$2.20	100	2.25	36	-	-
May	3.80	19	5.00	20	-	-	2.00	91	-	-	-	-
June	-	-	7.66	31	-	-	-	-	-	-	2.55	23
July	6.80	34	2.95	12	-	-	-	-	-	-	2.95	27
August	3.80	19	2.95	12	-	-	-	-	-	-	2.95	27
September	3.80	19	1.88	8	-	-	-	-	-	-	-	-
October	-	-	1.89	8	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-8.--128K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of over 10,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index
1984:												
June	$13.50	100	-	-	-	-	-	-	-	-	-	-
July	14.25	106	-	-	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-	-	-	$8.05	100
September	14.25	106	-	-	-	-	-	-	-	-	8.05	100
October	-	-	-	-	-	-	-	-	-	-	8.05	100
November	14.14	105	-	-	-	-	-	-	-	-	-	-
December	13.71	102	-	-	$10.35	100	-	-	-	-	8.05	100
1985:												
January	-	-	-	-	-	-	-	-	$6.30	100	-	
February	-	-	$9.00	100	-	-	-	-	-	-	6.00	75
March	-	-	-	-	-	-	-	-	-	-	7.90	98
April	-	-	8.07	90	-	-	$2.00	100	-	-	4.80	60
May	-	-	9.05	101	-	-	-	-	2.25	36	4.80	60
June	3.80	28	2.92	32	-	-	-	-	-	-	4.80	60
July	-	-	1.53	17	-	-	-	-	-	-	4.50	56
August	-	-	2.95	33	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-9.--256K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 1,000 units or less to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index
1984:												
June	-	-	$52.53	100	$60.00	100	-	-	-	-	-	-
July	-	-	51.03	97	35.00	58	-	-	-	-	-	-
August	-	-	45.80	87	38.25	64	-	-	-	-	-	-
September	-	-	35.70	68	66.00	110	-	-	-	-	-	-
October	-	-	32.44	62	66.00	110	-	-	-	-	-	-
November	-	-	30.33	58	26.54	44	-	-	-	-	-	-
December	-	-	19.51	37	21.00	35	-	-	-	-	-	-
1985:												
January	-	-	13.47	26	13.50	22	-	-	-	-	-	100
February	$16.00	100	12.49	24	14.84	25	-	-	$11.20	100	$32.25	31
March	16.00	100	10.98	21	25.84	43	-	-	9.50	85	10.00	25
April	-	-	6.96	13	11.32	19	-	-	5.00	45	8.00	25
May	-	-	6.12	12	10.50	18	$4.60	100	5.06	45	8.00	-
June	3.70	23	6.36	12	4.68	8	4.60	100	4.70	42	-	14
July	-	-	3.93	7	11.83	20	-	-	4.60	41	4.50	14
August	-	-	5.65	11	7.22	12	-	-	4.70	42	4.50	16
September	-	-	4.46	8	5.85	10	-	-	4.50	40	5.00	14
October	-	-	4.10	8	-	-	-	-	-	-	4.50	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-10.--256K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 1,000 to 5,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index
1984:												
June	-	-	$89.00	100	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-
August	-	-	39.51	44	$42.50	100	-	-	-	-	-	-
September	-	-	35.11	39	142.50	335	-	-	-	-	-	-
October	-	-	35.67	40	142.50	335	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-	-	-	-	-
December	-	-	31.00	35	-	-	-	-	-	-	-	-
1985:												
January	-	-	19.00	21	34.59	81	-	-	-	-	-	
February	-	-	22.19	25	24.00	56	-	-	-	-	-	-
March	$15.50	100	13.81	16	17.50	41	-	-	$6.35	100	-	-
April	5.00	32	6.88	8	-	-	-	-	6.00	94	-	-
May	5.00	32	5.86	7	26.25	62	$4.60	100	5.56	88	-	-
June	4.00	26	5.54	6	9.70	23	4.60	100	5.00	79	-	-
July	3.70	24	5.02	6	7.50	18	-	-	-	-	-	-
August	7.00	45	3.27	4	4.00	9	-	-	3.90	61	$5.00	100
September	7.00	45	4.00	4	4.15	10	-	-	4.60	72	5.00	100
October	7.00	45	3.00	3	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-11.—256K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of 5,000 to 10,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index	Weighted-average price	Index
1984:												
June	-	-	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-	-	-	-	-
December	-	-	$48.00	100	-	-	-	-	-	-	-	-
1985:												
January	-	-	-	-	-	-	-	-	-	-	-	
February	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-
June	-	-	6.29	13	-	-	-	-	$5.20	100	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-
August	$7.00	100	-	-	$5.00	100	-	-	-	-	$5.00	100
September	-	-	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table E-12.--256K EPROM's (250 ns): Weighted-average net selling prices for sales of domestic products and for sales of imports from Japan in quantities of over 10,000 units to 3 classes of customers, and indexes of those prices, by months, June 1984-October 1985

(Per unit)

Period	U.S. producers' price						Japanese importers' price					
	Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices		Factory direct sales to board stuffers		Sales to authorized distributors		Spot-market prices	
	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index	Weighted average price	Index
1984:												
June	-	-	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-	-	-	-	-
1985:												
January	-	-	-	-	-	-	-	-	-	-	-	
February	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-
June	$3.40	100	$3.25	100	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-
August	3.40	100	-	-	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-	-	-

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.